

Generation Next:

*The preparation of pre-service teachers
in primary physical education*



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KEY FINDINGS

- Nearly 50% of pre-service teachers in Phase One and over 30% in Phase Two, taught 0 lessons of physical education during their most recent school placement
- Only 2.3% of physical education lessons were taught by a sports coach, with a class teacher present. In total 36% of lessons were taught by non-qualified practitioners
- A varied workforce was involved in the delivery of primary physical education, with differing levels of qualification and experience. Sports coaches were the most frequently cited deliverer of physical education second to the class teacher
- 35% of pre-service teachers received no feedback about their teaching of physical education during their school-based placement
- The main barriers that prevented a pre-service teachers' development in primary physical education were: having no opportunity to teach the subject in school, the use of outside providers to deliver the physical education curriculum and poor quality mentoring.
- Across all initial teacher education programmes, most of the participants received just 6 – 10 hours of taught input on primary physical education. School-based routes offered less (1 – 5 hours) and university-based routes typically offered more (21+ hours)
- Pre-service teachers, on a specialist route, were more likely to teach and observe physical education than generalist peers. In many instances opportunities were given to specialists at the detriment of a generalist from within the same setting
- 62% of children received 120 minutes (or more) of physical education per week. This is a decrease since 2008, where the national figure stood at 90%
- Pre-service teachers presented a high willingness and a moderate level of confidence to teach physical education across all programme routes
- The number of lessons taught had a significant influence on pre-service teachers' overall confidence
- Confidence across all programmes was highest in areas of knowledge relating to health, fitness and well-being, safe practice, fundamental movement skills and games activities. Confidence was lowest in areas of knowledge relating to swimming activities and summative assessment.
- Pupil enjoyment and the opportunity to teach were the most positive experiences in supporting professional knowledge development of physical education during a school-based placement

INTRODUCTION

This is the final report of a two-phase research project that has investigated the current context for primary physical education (PE) initial teacher education (ITE). The data were collated during the academic year of 2015/2016 by partners working across the ITE, primary PE and school sport sector.

Research Context

The last four decades have seen a period of sustained and radical change to the structure, content and regulation of primary education in England (McNamara, Webb et al. 2008, Gilroy 2014, Murray and Passy 2014). This has included the introduction and reform of a national curriculum (DfE 1989, DfE 2013b, DfE 2014), national teaching standards (DfEE 1998, DfES/TTA 2002, DfES/TTA 2007, DfE 2012) and changes to the recruitment of teachers entering the profession (DfE 1993, DfE 2010, DfE 2011). Primary PE has been affected by all these reforms, with concern being raised about the quality of teaching in the subject (Griggs 2007, Ofsted 2013, Ofsted 2014). In recent years, primary PE has seen a resurgence of interest following the London 2012 Olympic Games, heralding a commitment to ‘inspire a generation’ (Griggs and Ward 2013, Parnell, Cope et al. 2016). This has subsequently influenced decisions about funding, teacher education and curriculum content (Griggs 2010, DfE 2013a, Griggs and Petrie 2016). Following an incredibly successful Olympic and Paralympic Games in Rio, it is important focus is maintained, not only to inspire the next generation of champions, but to educate and engage all young people for a healthy and physical future.

The need for research that examines ITE comes from growing concern about the future of primary PE, its disparate workforce and a lack of empirical evidence following investment into the subject. At the time of writing, it is understood that this is the largest study of its kind to be undertaken in England.

Research Questions and Objectives

The purpose of this research has been to improve understanding of the current landscape of primary PE ITE. The two questions that have driven this research are:

1. How prepared are pre-service teachers to teach primary PE?
2. What factors affect the development of primary physical educators during their ITE provision?

The objectives of the research were to:

- Generate empirical data in which to base future decisions for primary PE ITE
- Bring together a network of initial teacher educators to critically discuss current issues and share practice
- Articulate what ‘best practice’ might look like for primary PE ITE
- Make a positive contribution to an existing body of literature on primary PE ITE

REVIEW OF LITERATURE

The literature search for this report has been wide ranging, drawing upon recent and relevant research papers, policy documents and academic texts. A systematic review enabled a number of themes to emerge, connecting concepts relating to primary PE, ITE and policy.

Political Changes to Initial Teacher Education

In England, policy relating to ITE is currently the responsibility of the Department for Education (DfE), with the improvement of educational standards being a central issue. Policy context is important for this research because of:

- an increased importance afforded to schools as a preferred location for ITE
- the diversity of routes into teaching, leading to disparate ideas about the preparation of teachers in primary PE and what teacher educators need to know
- political documents that determine what knowledge is deemed valuable and by whom

The White Paper, *The Importance of Teaching* (DfE 2010) and the DfE's (2011) teacher training strategy, *Training the Next Generation of Outstanding Teachers*, were two policies in recent time that have directly impacted the recruitment, funding and training of teachers in England, aiming to address the issue of teacher quality (Lumby and Muijs 2014). These policies have influenced the curriculum that is taught and the preparation of beginning teachers by aiming to:

- raise the status of the teaching profession to make it more attractive to top graduates
- make sure that teachers receive solid training that gives them the practical skills they will need
- give teachers access to high-quality professional development so they can continue to improve throughout their careers

The political agenda to involve schools more in the ITE process has meant a shift in the way schools and universities collaborate (Haydn-Davies, Kaitell et al. 2010). In traditional programmes of ITE, universities and schools work together in some form of 'partnership' to provide comprehensive provision (Campbell, McNamara et al. 2007). At the heart of the school-university model is the commitment to develop a programme where teachers are exposed to different forms of educational knowledge; some of which come from school, some of which come from higher education and some from elsewhere (Campbell, McNamara et al. 2007). University-based provision has been criticised for being highly theorised, with claims that teacher educators can often overload trainee teachers with far too much information (Feiman-Nemser 2001). Ure (2010) explains that teaching candidates have reported becoming confused regarding what information is important as they find much of the initial learning is not directly useful when on teaching placement. Research into PE ITE also indicates that the majority of beginning teachers value the school-based

elements of their training over the traditional taught course (Hobson, Maldrez et al. 2006, Van Berlo 2007, Velija, Capel et al. 2008). In this traditional model, it is considered that the teaching placement provides the pre-service teacher (PST) with an opportunity to gain practical teaching experience where they can be totally immersed within a school environment (Van Berlo 2007, Meegan, Dunning et al. 2013). Divisive thinking that views the university as providing knowledge of theory and school of practice, can lead to a number of assumptions being made about the development of professional knowledge in ITE. Darling-Hammond and Bransford (2005) suggest that negative attitudes about the university could be avoided if teacher educators prioritise what it is that the PST needs to know.

Reflection and reflective practice has been a growing trend in many PE ITE programmes aiming to bridge the gap between the theory and practice divide (Attard and Armour 2005, Tsangaridou and Polemitou 2015). Schon (1983) makes a distinction between two types of reflection: 'reflection-in-action', reflection that occurs simultaneously with the act of teaching and 'reflection-on-action', reflection that occurs after the lesson. However the demands placed on a PST during their ITE course, can mean little time for in-depth academic reflection, or present a danger that reflection becomes just another box that needs ticking (Velija, Capel et al. 2008). The practicum element of any ITE programme is widely considered to be the most important component, yet remains the most problematic (Fletcher and Kosnik 2016). Darling-Hammond (2006a) states this can be because ITE programmes have difficulty in locating placements where the PST can observe strong practice, apply their learning and receive critical yet supportive feedback on their teaching.

In a study of 175 final year primary education PSTs, ranging across 16 different providers, Randall (2016) found that the development of professional knowledge was a far more complex process than just the school being a practical source of knowledge and the university a theoretical one. The findings showed that both the school and university contributed to both theory and practice and that PST's found their university-based input valuable, often over the school.

Reflection of any kind also depends upon opportunities to engage with PE throughout an ITE programme. With accountability for teacher competence in ITE moving more towards school-based experiences, Randall (2016), Haydn-Davies et al. (2010) and Adams (2015) suggest its impact needs further evaluating in order to understand what factors influence the quality of ITE provision.

Physical Education within a Political Landscape

PE remains a contested concept struggling to find its identity within the crowded political spaces of sport, health and education (Penney 2008, Griggs and Ward 2012, Coulter and Ní Chróinín 2013, Griggs and Petrie 2016). In England PE has been placed in an arguably unique position to other countries through recent political diktats, including the post London 2012 Olympic and Paralympic legacy (Griggs and Ward 2013); the Government Primary PE and Sport Premium (Griggs and Petrie, 2016); the Childhood Obesity Strategy (DoH 2016) and a revised primary national curriculum, which places competition in the subject's purpose of study, aims and content (DfE 2013b). The terms physical activity, sport and PE have been

used interchangeably amongst teachers and policy makers, who are unable to distinguish between them (Morgan and Hansen 2007, Lee 2010, Coulter and Ní Chróinín 2013). As a result of attractive policy making, it is argued that PE has been disconnected from a number of broader contexts including a wider movement culture, other subjects in the curriculum, and progression of learning within the subject and training and teacher needs (Griggs and Ward 2012).

The issue of teacher competency has been the subject of focus in many of the policy decisions concerning primary PE (Ofsted 1999, Revell 2000, Warburton 2000, Griggs 2007) with an expectation that lessons should be of 'good' or better standard (Ofsted 2013). Although there has been an improving trend in standards, achievement, opportunity and continued professional development (CPD) within primary PE, concern still exists over teachers' subject knowledge (Ofsted 2009, Griggs 2015). This has been evident in recent reports by Ofsted (2013, 2014), where weaknesses in teachers' delivery of primary PE has also been observed, including limited teacher subject knowledge, poor use of assessment, and superficial planning leading to insufficient challenge for pupils. Professional knowledge in particular was identified as a key factor in determining teacher confidence and competence, especially in schools where the quality of teaching required improvement.

Teachers' lack of detailed subject knowledge [of PE] limited the quality of feedback given to pupils about what they needed to do to improve. They were unsure about the step-by-step stages in teaching skills, and were unaware of the standards that pupils should achieve by the end of each key stage (Ofsted 2013: 52).

The perception that teachers consider PE to be a difficult and specialist area of the curriculum to teach, is also consistently presented in the literature (Moore, Webb et al. 1997, Garrett and Wrench 2007, Morgan and Bourke 2008, Morgan and Hansen 2008, Harris, Cale et al. 2011, Fletcher and Mandigo 2012, Harris, Cale et al. 2012, Rainer, Cropley et al. 2012). The current political agenda has reinforced this position with the launch of a new 'specialism' route for ITE made possible by government funding (DfE and EfA 2014, NCTL 2015).

Primary Physical Education and Sport Premium

In March 2013, an announcement of £150 million per annum was made by the Government to improve the provision of PE and sport in primary schools (DfE 2013a, Griggs 2016). A further and increased commitment has since been made in the most recent budget, the Government White Paper, *Educational, Excellence, Everywhere* (DfE 2016) and the *Childhood Obesity Strategy* (DoH, 2016). From September 2017, funding under the Primary PE and Sport Premium will be doubled to £320 million per annum, showing an ongoing commitment from the Government to support primary PE and school sport. The Association for Physical Education (AfPE) (2016) have stated that indicators of improvement as a result of this funding should include:

- the engagement of all pupils in regular physical activity – kick-starting healthy active lifestyles
- the profile of PE and sport being raised across the school as a tool for whole school improvement
- increased confidence, knowledge and skills of all staff in teaching PE and sport
- broader experience of a range of sports and activities offered to all pupils
- increased participation in competitive sport

The nature of these indicators mean schools will need to consider how improvements are evidenced and monitored, with a particular focus on provision, participation, health and staff competence (Todd 2015). As schools move towards increased funding in the autumn of 2017, clarity towards what these five indicators could look like in practice is required as soon as possible to ensure planning for sustainable impact. At this time, only limited research has been undertaken into how the premium is being spent. In 2015 the DfE published a two-year study that examined how the Primary PE and Sport Premium was being used in schools and its perceived impact. The main findings from a sample of 533 schools nationally, reported that common uses for premium spending were to up-skill and train existing staff (81%), buy new equipment (86%), provide more extra-curricular activities (69%) and employ new sports coaches (68%) (Callanan, Fry et al. 2015). Wider impact, beyond just the spend, reported that curriculum time had increased by 15 minutes to 124 minutes (although this was now in decline after the initial investment to a figure of 118 minutes), improved resourcing and increased participation (Callanan, Fry et al. 2015). One of the biggest claims cited in the report was the increase in the use of ‘specialist teachers’ to deliver the curriculum, which have risen from a pre-premium figure of 30% to 46% (Callanan, Fry et al. 2015).

The benefits of deploying a ‘specialist’ to deliver curriculum PE is highly debated. In the United States it has been suggested that specialist teachers have better knowledge of movement skills, can enhance student performance, provide accurate feedback and are more likely to be successful at encouraging students to adopt a physically active lifestyle (DeCorby, Halas et al. 2005, Graber, Locke et al. 2008). Whilst such benefits are recognised, some argue that this negates the principal purpose of primary education in providing young learners with a more holistic learning experience and can further disconnect PE from the broader curriculum (Morgan and Hansen 2007, Griggs and Ward 2012, Kirk 2012). Blair and Capel (2011) argue that although outsourced specialists may hold knowledge of the activity areas, they do not have the broader knowledge, skills and understanding required to educate young people physically. There is a danger that the unique and individual identity of PE may be lost leading to a further notion of ‘sportisation’ (Green 2008). Despite making the claim that there had been an increase to nearly 50% of specialist primary PE teachers since the funding was introduced (Callanan, Fry et al. 2015), the report was unable to determine the exact nature and definition of what a specialist was and did not include if they had qualified teacher status or sufficient experience in delivering high quality PE.

A more recent investigation into the Primary PE and Sport Premium has been undertaken by Griggs (2016), also examining how schools were spending the money. Although this study does not explore the issues on a national scale, this in depth case study of schools in the West Midlands draws upon data from an initial sample 1848 primary schools. The findings from this research also confirm that the Premium has been a welcome investment for increasing provision of primary PE and sport and facilitating professional development for staff. However, of concern was the unwillingness of schools to invest money away from specialist teaching to the deployment of external coaches, raising further concern over sustainable curriculum provision. Furthermore, almost two-thirds of schools failed to comply at all with public transparency of how they were using the money (Griggs 2016).

The continued investment into primary PE through the Premium continues to raise a number of concerns, but also optimism for the potential such investment can bring to the subject. However, what is evident is the need for robust and reliable intelligence on the impact and future sustainability of such funding.

The Wider Workforce in Primary Physical Education

In order to meet an expectation of two hours of high quality PE each week, the number of adults other than teachers delivering the curriculum has risen dramatically. Many generalist teachers perceive themselves as not adequately prepared to teach PE (Blair and Capel 2008) leading to many primary head teachers preferring to outsource the delivery of PE to external providers (Rainer, Cropley et al. 2012). With a lack of confidence and competence in the delivery of PE and concern over safety (Griggs 2015), one solution has been to employ sports coaches and external providers in the form of swimming, dance and gymnastics specialists. With an increased visibility of sports coaches in the PE curriculum, teaching and coaching are regarded as synonymous (Lyle 2002). Many coaches typically focus on the psychomotor domain, with some recognition given to the cognitive domain, but relatively little acknowledgement is given to the affective domain when teaching in a PE context (Cassidy, Jones et al. 2004). Practice such as this can be seen at odds with the ethos of primary education, as it has historically focused on a more holistic child-centred approach to learning (Haydn-Davies, Kaitell et al. 2010).

Writing in 2010, prior to the Primary PE and Sport Premium funding, Griggs (2010) recognised a growing trend in the use of sports coaches to deliver curriculum PE. This has been echoed in other countries including Australia (Whipp, Hutton et al. 2011, Williams, Hay et al. 2011, Brooks and DinanThompson 2013) and New Zealand (Petrie and lisahunter 2011), with a view that the outsourcing to external companies has been considered a 'solution' to the teacher competency problem and remains a policy choice of teachers. Although the Primary PE and Sport Premium was not intended to displace or replace teachers (Davies 2013), there has been a growing trend to use the funding in this way (Smith 2015), adopting a neo-liberalist view that 'the teacher is a provider of services to a client and is accountable to the market in terms of improved production and measurement against external standards' (Brooks and DinanThompson 2013: 237). Ofsted reported that in the 22 primary schools they visited, most of the funding was used to 'deploy new sports

coaches and other personnel qualified in sport to teach pupils in PE lessons' (Ofsted 2014: 6). Griggs (2012b) suggests that this trend is problematic for the physical development of young people, reinforcing a sporting discourse and a practice that amounts to repetitive learning of sporting technique that does not reflect pupils' wider needs (Griggs and Ward 2012). In more recent research undertaken by (Griggs 2016), he uncovered that in the West Midlands alone, there was a notable shift in schools outsourcing facilitated by the Primary PE and Sport Premium, with 77.91% of schools (from a sample of 642) employing sports coaches.

Interviews with sports coaches working in schools has identified four predominant themes for their place within the school environment: teachers' lack of engagement with extra-curricular provision, planning, preparation and assessment (PPA) cover, teachers' willingness to 'give up' PE and a lack of confidence in the subject (Griggs 2010). Findings have also shown that most coaches charge approximately £20 an hour, 'providing a cheap, yet educationally questionable, option' (Griggs 2008: 36). Sports coaches have reported having little to no knowledge of the NC for PE, undertake little planning and often with no assessment of children's learning (Blair and Capel 2008, Griggs 2008). Whilst there is a broad acceptance that coaches might bring 'specialist' knowledge to the curriculum, there are concerns felt amongst the academic profession about their ability to adopt educational approaches such as classroom management, behaviour management, teaching skills and assessment strategies (Lavin, Swindlehurst et al. 2008)

The Development of Teachers in Primary Physical Education

A substantial body of literature suggests that perceptions of a teacher's practice are likely to be heavily influenced by their personal and prior experiences (Lawson 1983b, Dewar and Lawson 1984, Stroot and Williamson 1993, O'Bryant, O'Sullivan et al. 2000, Curtner-Smith 2001, Garrett and Wrench 2008, Pearson 2011, Pickup 2012a, Elliot, Atencio et al. 2013) and school-based learning (Lawson 1986, Hastie, Curtner-Smith et al. 2005, McMahon and MacPhail 2007, Zeichner 2010). Lawson (1986: 107) defined these experiences as a process of occupational socialisation, which are understood to include 'all kinds of socialization that initially influence persons to enter the field of PE and later are responsible for their perceptions and actions as teacher educators and teachers. In addition, Lawson observed that three distinct types: acculturation, professional socialisation and organisational socialisation (Lawson 1983b) were likely to shape PE teachers' perspectives about the subject (Curtner-Smith 2001). Elliot, Atencio et al. (2013) and McMahon and MacPhail (2007) found that the professional socialisation of primary teachers from prior experiences were a powerful determinant of future confidence. It is believed that once developed, dispositions of prior life experiences would be highly resistant to change (Pickup 2012b), suggesting that if negative underlying prior experiences are not addressed, it is likely this initial pattern of behaviour will perpetuate throughout a teacher's career (Garrett and Wrench 2007).

Morgan and Hansen (2008) considered the influence of the individual and the institution when looking at challenges that exist in implementing PE in primary schools. Confidence is

considered to be a significant factor, with earlier studies indicating that negative teacher attitudes and limited preparation from ITE programmes can prevent the delivery of effective PE (Andrews 1987, Howarth 1987, Faucette and Patterson 1989). The institution (the school), was considered the most significant inhibitor as teachers specifically expressed a lack of time, limited professional development and minimal resources dedicated to the subject (Morgan and Hansen 2008).

Morgan and Bourke (2008) have further identified that a teacher's prior experience of PE plays a significant role in the teaching and learning of the subject, with 'the quality of an individual's school PE experience directly predicted his or her confidence to teach PE' (Morgan and Bourke 2008:2). The majority of respondents in their study indicated a moderate level of confidence in their PE teaching abilities with personal experience and knowledge, interest and enjoyment and qualifications identified as the primary factors in determining confidence. Results showed that men tended to score more highly on the perceived confidence over females, as they were more likely to be involved in sporting activities and remember school PE experiences more favourably (Morgan and Bourke 2008). Alternatively, those who claimed not to enjoy or recalled negative PE experiences in school, indicated lower levels of PE confidence (Morgan and Bourke 2008).

Mezirow (2000) explains that what we know and believe is embedded within the context of our biographical, historical and cultural experiences; however the interpretations and explanations that worked for us as children often no longer work for us as adult learners. Beliefs about the subject from childhood that were positive and enjoyable may well be contested under their new identity as an educator (Randall 2016). It is the assessment of these earlier experiences, seeking agreement of their meaning and making decisions based upon these insights, that is considered to be central to the learning process as adults (Mezirow 2000). Mezirow further explains that for adults learning is understood as 'the process of using a prior interpretation to construe a new or revised interpretation of the meaning of one's experience as a guide to future action' (2000:5). In an autobiographical account, Pearson (2011) came to better understand her role as an adult educator through deep reflection and engagement with her students. She observed that her students' prior experiences had placed them in a metaphoric 'mental straightjacket' where they felt disempowered about what they were capable of as future primary physical educators. Pearson (2011) further commented that this not only had implications for her pedagogy as a teacher educator, but if the matter went unaddressed it could lead to dangerous and powerless decision-making by the students about their future perceived ability. Within this account, Pearson (2011) problematises the impact of her teaching on the future effectiveness of her students. If they are unable to make confident decisions about their own development, it raises the question of who will make these decisions on their behalf. For many beginning teachers, experiences from school can lead to alienating and narrow definitions of PE through dominant discourses of sport and competition (Garrett and Wrench 2007). ITE is responsible for the transition of an individual from a pupil to a teacher and must also ensure negativity is not perpetuated, despite the thinking that dominant beliefs are highly resistant to change (Rolfe 2001, Pickup 2012b).

The literature highlights that the experiences teachers have of PE as a child, and later through their professional programme of ITE, can have ‘...a distinct and traceable influence on an individual’s future decisions, practices, and ideologies as a teacher’ (Schempp and Graber 1992: 333). Moreover, what a teacher sees being taught, who they see teaching and how they see learning being delivered will strongly influence a beginning teacher’s understanding of what makes high and poor quality teaching (Schempp 1989). Therefore, the place of prior experiences and the role of the school becomes a notable factor in an individual’s training. It is argued that PSTs must be dynamic and active change agents (Schempp 1989) if they are to influence and ultimately determine their future behaviours and beliefs (Templin and Schempp 1989, Pajares 1992). This has been further echoed by Randall (2016) who argues that in order to develop autonomous adult learners, teacher educators must embed pedagogy that supports the beginning teacher in a process of communicative action (Habermas 1984), where they are able to reflect on practice and validate their professional knowledge for themselves.

Effective Primary Physical Education Initial Teacher Education

The effectiveness of ITE has been of great interest to the education community (Caldecott, Warburton et al. 2006, Pickup 2006, Harris, Cale et al. 2012, Tsangaridou and Polemitou 2015) with criticism that programmes are not sufficiently preparing future teachers (Warburton 2000, Cochran-Smith 2004a, Cochran-Smith 2004b, Darling-Hammond 2006b, Talbot 2007). Despite the collaborative nature of school-university partnership (Campbell, McNamara et al. 2007), only limited time is allocated to teacher preparation in PE in the university setting (Caldecott, Warburton et al. 2006, Talbot 2007, Griggs 2015), which for many is further impacted by minimal opportunities to teach during the school-based placement. With no current regulation on the amount of time devoted to PE ITE, student experience is variable across the United Kingdom. Blair and Capel (2011) have cited as little as five hours in some UK institutions with Elliot, Atencio et al. (2013) noting a variation between 0 – 15 hours. In the most recently revised Ofsted ITT inspection handbook it states that all primary trainees are to:

Teach physical education and demonstrate good subject knowledge and teaching strategies, including for pupils/learners with special educational needs.

(Ofsted 2015: 38-39)

Many reasons are attributed to the subject’s apparent low status during a teacher’s initial preparation compared with other subjects in the curriculum (Shaughnessy and Price 1995, Warburton 2000, Morgan and Bourke 2008). This has been attributed in school-based environment to large number of PE lessons being cancelled (Pickup 2006), a significant number of classroom teachers and mentors expressing a difficulty in teaching PE (Morgan and Bourke 2008), pressures on the school timetable (Pickup 2006), and limited space/facilities in schools to deliver regular PE programmes (Harris, Cale et al. 2011). Since the implementation of the Workforce Reform Act (DfES 2003a), PSTs have undertaken their PPA time during the timetabled PE lesson, with lessons being delivered by outside providers (Blair and Capel 2008, Griggs 2010, Blair and Capel 2011, Griggs and Ward 2012, Adams

2015). These factors have resulted in many PSTs receiving inadequate opportunities to develop their professional knowledge in PE, resulting in low levels of confidence and competence to teach (Katene and Edmondson 2004). A study by Caldecott, Warburton et al. (2006) reported that student teachers teach very few PE lessons and a small proportion of school mentors have sufficient subject knowledge to provide informed support in regards to the subject. Van Berlo's (2007) case study of an ITE course further identified several worrying trends. Although it was assumed, there was no guarantee that students would have the opportunity to apply the theory learned from the taught element of the university-based course into sustained progressive teaching episodes when in school. Furthermore, it was also unlikely to be accompanied by quality mentoring and feedback and by someone whose appointment was not necessarily based on specialist knowledge (Van Berlo 2007). This may be seen as a concern as generalist teachers may lack the understanding content knowledge to implement and lead a successful PE programme.

Haydn-Davies, Kaitell et al. (2010) researched how much time PSTs got to teach PE when on school experience. Their study involved 200 trainee teachers who were on a BA Primary Education programme, leading to the recommendation for the award of Qualified Teacher Status. The research confirmed that the opportunity to teach PE in primary schools was limited, with a quarter of trainees having no opportunity to teach at all. The study concluded that there was a lack of enthusiasm in schools for PE, poor mentoring and a lack of good practice teaching examples. Although the quality of PE ITE does not rely solely upon the volume of contact time during taught sessions and the number of lessons taught, Pickup (2006) identifies that the 'philosophical positioning' of the underpinning theory and approaches taken during experiences in school are important factors for consideration in relation to evaluating the quality of students' experiences.

Deciding what knowledge should be covered in such a minimal time has been an additional challenge for teacher educators, with questions raised about whether ITE programmes should emphasise pedagogical over content knowledge (Freer 2011). The knowledge-base for the subject is diverse and requires beginning teachers to have a good understanding of subject content, pedagogy, wider professional issues and practice. For those preparing to teach primary education in England, it is a requirement that training spreads across two consecutive age phases, which could include the Early Years Foundation Stage (EYFS) and key stage one (KS1), or key stage two (KS2). ITE providers are therefore required to develop teachers' understanding of physical learning across both EYFS and NC frameworks. In a study exploring teachers' perceptions of transition, Rainer and Cropley (2015) found that little was known by teachers about their neighbouring age phases. In addition, negative perceptions were held about what was undertaken in the phase either prior to or following the one they taught in. This often resulted in limited knowledge of progression in PE, a limited understanding of where the children were moving on to, or what had been previously taught (Rainer and Cropley 2015).

The view that PSTs will acquire competence in primary PE by receiving both school and university inputs has been viewed as problematic, as assumptions are made about who is responsible for developing various aspects of knowledge (Menzies and Jordan-Daus 2012). In order for such a partnership to work, an understanding must be met regarding who is responsible for teachers' professional knowledge development and the meeting of professional standards. An ideal being where agreement exists between all stakeholders i.e. where the school, the university and beginning teacher has a clear understanding of their individual and collective responsibility. Haydn-Davies, Kaitell et al. (2010) stress that if primary teachers are to develop into high quality educators then a partnered approach to their development must be based upon a shared philosophy and common goals. Both wider societal agendas and individual philosophies of education must also be mediated to avoid conflict in future practice.

Professional Knowledge

Teaching and the knowledge-base it requires, makes it a highly complex and expert activity (Hegarty 2000b, Musset 2010, Tsangaridou and Polemitou 2015). Central to any discussion of teacher knowledge is a judgement about what teachers must be able to know, understand and do (Darling-Hammond and Bransford 2005, Darling-Hammond 2006b), to which the literature presents varying models and perspectives. In order to make sense of the term professional knowledge, an understanding of what it is to be a professional is first required. Despite the widespread use of the term, the concept of a 'professional' is deeply contested and difficult to define (Furlong, Barton et al. 2000, Brooks and DinanThompson 2013). Hargreaves (2000) presents the development of a teacher through four distinct professional stages: the 'pre-professional', the 'autonomous professional', the 'collegial professional' and the 'post-professional'. All stages are in essence a reflection on how a teacher responds to the nature of their work, changes to government policy, perception of their agency and what they contest about curricular matters, assessment and pedagogy (Day, 2002). The 'pre-professional' stage is closely aligned to the PST and is considered to be 'technically simple' in terms of pedagogy and managerially demanding (Hargreaves 2000). This indicates that the beginning teachers' knowledge of teaching is still in its infancy and lacks self-validation and autonomy. However, a specialist body of knowledge is common to any definition of a professional at any career stage with an application of knowledge that appears in contexts which may be unpredictable and require a level of judgment and decision making (Schon 1983, Furlong, Barton et al. 2000, Harrison and Lee 2011). Darling-Hammond (2006a) stresses that the decisions teachers make must be in part moral and serve the interests of their students.

The earlier review of the literature indicated a number of recommendations for improving the confidence and competence of teachers in primary PE, including increased time for PE within ITE (Carney and Armstrong 1996, Morgan and Hansen 2007, Harris, Cale et al. 2012), dedicated CPD that is matched to teacher and learner needs (Keay and Lloyd 2011, Coulter and Woods 2012, Todd 2015), clear articulation of the subjects' purpose (Pascual 2006, Tsangaridou 2006, Green 2010) and the use of 'specialists' who have knowledge to develop PE outcomes (Morgan and Hansen 2007, DfE and EfA 2014). Some of these

recommendations have/will require enactment at a political level, but it is believed that a proactive approach can still be taken by researchers and teacher educators to support the development of teachers in an applied context (Randall 2016). The professional knowledge of teachers has emerged as a factor that connects all these issues, due to the very limited subject knowledge opportunities during ITT, or for CPD thereafter, teachers will tend to make few alterations to their practice and subsequently maintain 'a role with which they are comfortable' (Keay 2006b: 370).

What sets education and teaching apart from other professional contexts is that the knowledge required must be geared towards learning and knowledge creation (Hegarty 2000a). The literature is limited on research that focuses on primary teachers and their potential to teach primary PE (Tsangaridou 2012), but even less is known about the stage prior to qualification. Previous research has started to tackle complex questions relating to the nature of knowledge in PE and what experiences favour the acquisition of content (Pascual 2006, Amade-Escot and O'Sullivan 2007), but this has tended to valorise children's learning over teacher learning. An understanding of what knowledge PST's need for teaching primary PE as routes into teaching become more diverse and the curriculum they teach more streamlined.

The Professional Knowledge Model (PKM) (Randall 2015) is a map of professional knowledge of primary PE and is presented through four distinctive domains: Content Knowledge, Subject Pedagogy, Reflective and Academic Engagement and Developing Practice in Context. The PKM was designed to provide a general overview to support the teacher as a learner (Randall 2015) and to help keep sight of what is essential (Pascual 2006). The PKM reflects an understanding of professional knowledge at a point in time, however Bernstein (1996) cautions that disciplinary knowledge has, and will, continue to be reconfigured to keep in line with rapid growth and changing applications of knowledge. For primary PE ITE this might include future developments in areas such as pedagogy, sport, child development, health and policy.

The four domains presented on the PKM collectively reflect the breadth of professional knowledge required to teach primary PE. It has been built upon the seminal work of Shulman (1987) and others who have attempted to organise teacher knowledge in this way (Eraut 1992, Turner-Bisset 1999, Hegarty 2000a, Darling-Hammond 2006b). Through an understanding of content, pedagogy, context and reflective engagement, each domain is regarded as having equal importance, but consideration is given to the order in which knowledge is first developed and then progressed. The emerging stage, the knowledge that is central to the model, is considered to be the area most pertinent for primary educators who are learning to teach PE from an initial starting point. At this stage of a teacher's learning perceived levels of confidence and competence may be identified, but development, reflection and application across a breadth of professional knowledge is needed in order to address 'teacher concerns'. It is been previously argued that if primary educators wish to truly understand the role of primary PE in the curriculum, a consideration of their own prior experiences must first be made as this can have a significant impact on their future practice as teachers (Mezirow 2000, Curtner-Smith 2001, Garrett and Wrench

2007). Macdonald, Hunter et al. (2002) believe that ITE should reflect educational change through philosophical curricular and structural changes in policy and practice, therefore the domain of Reflective and Academic Engagement is argued to be an important sub-section of a teacher's professional knowledge-base. Haydn-Davies, Kaitell et al. (2010) state that complex discussions surrounding beginning teachers' confidence and competence to undertake their role are strongly linked to both their knowledge of the subject and knowledge of how to teach children. Kay (2004) questions whether beginning teachers and their ITE tutors have a shared understanding of the terminology used in regards to content knowledge, as the term PE alone can conjure up varying thoughts and beliefs based upon people's prior experiences. Haydn-Davies, Kaitell et al. (2010) feel the lack of clear understanding regarding what subject knowledge is and getting the balance right between knowledge and application of principles, is the crux of the dilemma faced by all those preparing teachers to educate primary-aged children and can lead to PSTs relying on their prior experiences as a main source of their knowledge competence.

Another key feature of the emerging stage is a foundational understanding of what to teach. Knowledge of movement skill development and knowledge of the developing child is placed on the PKM ahead of specialised activity areas; as in order to develop competent performers, motor development must first be secure (Griggs 2007). If a beginning teacher has not acquired this knowledge then a child's learning may become focused on the activity rather than the child's movement development. With the most significant periods of development in children taking place within primary years (Gallahue and Cleland-Donnelly 2007, Gallahue and Ozmun 2011), educators working in this age phase must support children in moving through a 'proficiency barrier' of fundamental movement competencies in order to be proficient in more specialised activities in later childhood (Griggs 2007, Gallahue and Ozmun 2011, Graham, Holt/Hale et al. 2012). The national curriculum for primary PE specifically requires children to master basic movements and develop a broad range of skills (DfE 2013b). Knowledge of the movement skills alone is not sufficient, as PSTs will need practical application to apply movement learning, in context and with consideration to a range of effective teaching approaches (Jess 2011).

Content Knowledge

Content knowledge is described by Shulman (1987) as the nature of knowing in the field of study and the accumulation of studies in the content area. This category of teacher knowledge is considered to be the source of serious controversy in the field of PE (Siedentop 2002), as academics continue to debate what the nature of knowing is and what the programmes of PE and ITE should be achieving (Siedentop 2002, Green 2010, Ni Chróinín and Coulter 2012). The development of content knowledge in PE is related to the historical, social and cultural texts in which it takes place (Coulter and Ni Chróinín 2013) and must reflect the knowledge of what children should know and the goals teachers should be working towards (Pascual 2006). For that reason, knowledge of curricular frameworks, activity areas and knowledge of learners are also considered within this domain as they are situated in an education system where the subject is statutory. A person educated through

PE can be understood as someone who, through engagement in a range of physical learning contexts, can achieve outcomes beyond the physical.

...[the PST] has improved his/her cognitive, motor, social, affective and other abilities in order to understand and act in the social and natural world and contribute to make a more humane (and civilized) society (Pascual 2006: 73)

Content knowledge in primary PE includes the breadth of subject incorporating knowledge of not only how to move, but also how to learn through movement (Doherty and Brennan 2014). It is argued that for many primary beginning teachers, content knowledge is often lacking due to the limited time on ITE programmes dedicated to developing subject content (Phillips and Faucette 2013). It has also been attributed to low teacher confidence and an uncertainty about what to teach (Coulter and Woods 2012).

Subject Pedagogy

In Shulman's (1987) presentation of teacher knowledge, he distinguishes general pedagogical knowledge from pedagogical content knowledge (PCK). The rationale for this is to provide an understanding of how particular topics, problems or issues are organised, represented and adapted to the diverse interests and abilities of learners within specific subject contexts (Turner-Bisset 1999). In bringing together subject knowledge with pedagogical knowledge, Shulman (1987) strengthens the relationship between theory and practice (Keay and Lloyd 2011), suggesting that having knowledge of a subject is different from knowledge of how to engage learners in that subject. Whilst primary teachers may recognise Shulman's (1987) knowledge categories within their own general practice, such knowledge should be rigorously applied for PSTs within PE specifically (Randall 2016). Shulman (1987) explains that anyone may hold knowledge that is yet unknown to someone else, but through performance skills, attitudes, pedagogical representations, it is the teacher who transforms that understanding into meaningful knowledge for the learner. Thus, a teacher must not only have knowledge-that (what is to be learnt) but knowledge-how, how it is to be taught. For a primary teacher, the seven domains of teacher knowledge presented by Shulman (1987) apply across the different curriculum subjects therefore this distinction of PCK is required.

Reflective and Academic Engagement

This area of professional knowledge is understood to be the knowledge acquired through engagement in academia, research, policy and self (Randall 2016). (Dewey 1904) argues that the adequate professional instruction of teachers requires both a theoretical as well as a practical dimension. However, deconstructing knowledge from theory and practice can be problematic because what is valued depends largely upon different epistemological perspectives (Tom and Valli 1990). Tsangaridou (2006) suggests the phrase 'teacher knowledge' can conjure different meanings and influence discussions about what constitutes effective practice. This places decisions about the knowledge required for beginning teachers in a highly contentious space, but signifies the importance of the beginning teacher being aware of the broader context in which they work and developing a

rationale for the place of the subject within the curriculum (Pascual 2006). Shulman (1987) suggests there are four major sources of teacher knowledge: scholarship in content disciplines, materials and settings, research on social and cultural phenomena and the wisdom of practice. From these four sources, Shulman (1987) attests that the normative and theoretical aspects of knowledge are usually not valued by policy-makers and those involved in staff development compared to studies of teacher 'effectiveness'. However, in a recent review of ITE, Carter (DfE 2015a) recommended that evidenced-informed teaching should play more of a central role in the future development of beginning teachers and form part of a core curriculum for ITE.

Developing Practice in Context

Grossman and Richert (1988) define teacher knowledge as knowledge that encompasses general pedagogic principles with the skills and knowledge of the subject matter to be taught. Within this definition the knowledge required to be a teacher is more than just having a sound understanding of subject matter, but also includes an understanding of how to present that knowledge effectively to learners. It is based on the premise that learning in context is essential for teacher improvement (Coulter and Woods 2012). Ryle (1949) distinguishes knowledge between 'knowing that', the knowledge of facts, 'knowing how' and the skill of how to put knowledge of 'that' into practice. Ryle (1949) rejects Cartesian Dualism, the separation between the mind and body and the segregation of theoretical understanding from practice. He argues that knowing how to perform an act skilfully is not only a matter of being able to reason practically, but also a matter of being able to put practical reasoning into action. Knowledge of what and how becomes central to any philosophical discussion about what knowledge (Ryle 1945-1946). For teachers there is theoretical knowledge associated with theories of education and the curriculum (knowledge that), but there is also knowledge of how that knowledge is enacted in practice. For example, it is not enough for a primary physical educator to merely have the knowledge of the curriculum and the movement skills a child requires to become physically educated, if they are unable to apply that knowledge in a meaningful context with the child. The preparation of teachers in primary PE must therefore include both theoretical understanding and practical knowledge application (Randall 2016). Ryle (1949) explains that a failure to recognise the distinction between knowing-how, knowing-that and the interplay between the two can lead to a state of 'infinite regress'; an argument against cognitivist theories of behaviour, where the knowledge of rules and facts are on their own meaningless as they do not explain knowledge claims.

With a trend in primary PE towards more outsourced providers delivering the curriculum, Adams (2015) is concerned with the impact this is having on the development of PSTs. She reports that the main reason beginning teachers from her institution were unable to plan, observe, or teach PE when on school experience was due to lessons being delivered by an outside agency. Adams (2015) further commented that her students felt less inclined to seek opportunities to teach, if PE was taken by someone external to the school. The knowledge developed in practice not only sets the expectation that professional knowledge development requires engagement and application in the environment of where children

learn, but teachers must also develop their knowledge of the wider-workforce too (Randall 2016).

Physical Education Futures

For years PE has lacked the ability to determine its own destiny, as it has often been the site of short-lived fads and sectional interests (Massengale 1987, Kirk 2010). The role of primary PE in the future will largely depend upon its place within the broader primary curriculum and the societal/cultural function it will need to fulfil (Charles 2005). Although it is not possible to fully predict the future of primary PE, research, professional conversations and the subject's history have helped to shape fictional accounts to inform future predictions (Hoffman 1987, Tinning 2002, Griggs 2015, YST 2015). The current desire to outsource primary PE (Blair and Capel 2008, Griggs 2008, Griggs 2010, Blair and Capel 2011), the focus on a curriculum that emphasises traditional sports and competition from an Olympic Legacy (Griggs, 2015) and the grave concern over children's health, inactivity and well-being (DoH, 2016; Children's Society, 2016) has led to a number of predictions. The most prominent concern is nearly a third of children are now considered to be overweight or obese with younger generations becoming obese much earlier on (DoH 2016).

The Good Childhood Report (2016), the fifth report of its kind that examines how good life is for young people, has highlighted an emerging gender gap between the well-being of girls and boys, with 1 in 7 girls stating they were unhappy with their life as a whole. This difference is even starker when considering how children feel about their looks, with more than one third of girls (34%) reporting that they were unhappy with their appearance.

For PE more specifically, a report commissioned by The Youth Sport Trust, examined the future of PE and sport in UK Schools. The Class of 2035 projects four possible visions of the future from the perspective of young people. These have been entitled the 'digitally distracted' generation, the 'fit for purpose' generation, the 'go-it-alone' generation and the 'side-lined' generation (YST 2015). Each of these visions are believed to be determined by structural drivers - the ability and resources of school sport practitioners and agency drivers - the impact of the digital revolution on young people's lives (YST 2015). Of particular interest to this research is the structural driver, as it directly relates to those people who deliver primary PE. Conclusions suggest that the ability of practitioners to deliver a diverse array of PE and sporting opportunities will have a dramatic impact on young peoples' physical activity levels in 2035. Furthermore, poorly trained and funded teachers will be a factor in the future of the 'side-lined generation', where PE is not fit for purpose and fights against unmotivated young people who are unwilling to take part in physical activity (YST 2015).

Hoffman's (1987) prediction of the future of PE in primary schools presents a demise of PE, where PE is no longer on the curriculum and has been replaced with self-directed play that is supervised by low qualified managers. The type of scenario is believed to offer pupils a break from academic study, but at the fraction of a cost of delivering curriculum PE (Kirk, 2010). A similar dismal future has also been predicted by Tinning (1992), where PE disappears from the formal curriculum altogether and is no longer taught by qualified

teachers but replaced by commercial companies offering sport, fitness and skills. Tinning (1992) suggests that this prediction would become a reality if teaching in primary schools becomes entrenched in practices that are resistant to reform, if ITE programmes inadequately prepare teachers in primary PE and if a lack of organised and coherent policy fails to address the subject's needs (Kirk, 2010). Many of these somewhat satirical predications have already begun to materialise and embed within our current education system (Williams, Hay et al. 2011). Projecting even further in 2040, Griggs (2015) proffers five case studies about the future, all of which are connected by accountability, staffing, policy and societal needs. The most alarming of these five scenarios is where the state of PE does not change over the course of 50 years and where there is no political interest about who should teach and what should be taught.

With many of Griggs' (2015) predications about 2040 mainly written with positivity – with the subject addressing the needs of young people and community interests and with current policy still committing an investment for primary PE - he projects much optimism and potential for the next generation of future teachers. However, what is most apparent is the complexity of the subject in determining what one of the many scenarios predicted will (if at all) become reality. Future events, research and policy will ultimately guide PE's direction, which in 2016, is still yet to be determined.

RESEARCH APPROACH AND METHOD

This research has drawn upon mixed methods to obtain a large scale data harvest. The collection of quantitative data has aimed to identify levels of confidence over a breadth of professional knowledge areas, the opportunity for trainees to observe and teach lessons and their willingness to engage in PE. The collection of qualitative data has aimed to identify reasons attributed for positive experiences from within primary ITE programmes, barriers that have prevented development and offer an insight into the nature and context for primary PE in a school-based environment.

The data was collected over two distinct phases:

Phase One (December 2015-February 2016)

An online survey was designed to generate a 'snapshot' of experience of PE teaching during a PST's last school-based placement. The purpose of this phase was also to identify the nature of the questions to be asked in Phase Two. The Phase One survey specifically asked:

- What programme of ITE are you currently on?
- Did you teach PE when you were on your last school placement?
- Who mainly taught your class PE?
- Who mainly taught PE across the school?

Phase Two (March-July 2016)

A second online survey of 44 questions requested a more detailed overview of primary PE ITE than in Phase One. The structure and content of the Phase Two survey was derived from the key areas of professional knowledge outlined in the Professional Knowledge Model (Randall 2015). The knowledge areas, from within the PKM, were written as statements to allow participants to make a numerical judgement about their confidence against each aspect of knowledge.

Sample

The research questions determined who the sample population would be. Newby (2010) makes reference to the sample being the right source of information, where any participant must first have knowledge of the issue and second be credible as a source. Purposive sampling was adopted to ensure that participants were appropriate and information-rich cases (Bryman 2012, Day Ashley 2012). All participants were PSTs enrolled on a programme of primary education leading to the recommendation for the award of Qualified Teacher Status (QTS) during 2015/2016. A total of 1118 responses were obtained in Phase One and a further 625 in Phase Two. Participants were drawn from 22 ITE providers, across every region in England and across undergraduate, post-graduate university and school-based routes.

Initial contact with the sample was made by a member of the research team with an identified gatekeeper at each institution. Any contact with the participants was then subsequently made by the gatekeeper.

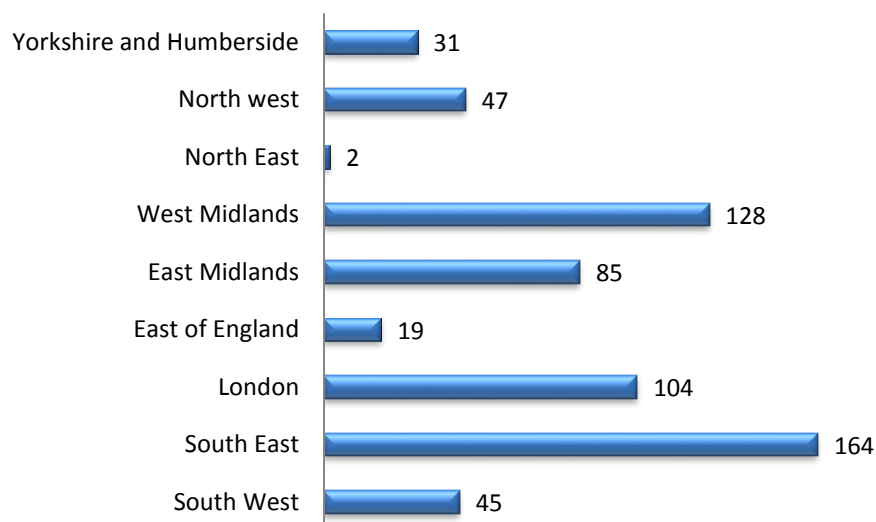


Figure 1: Breakdown of sample over regions in England

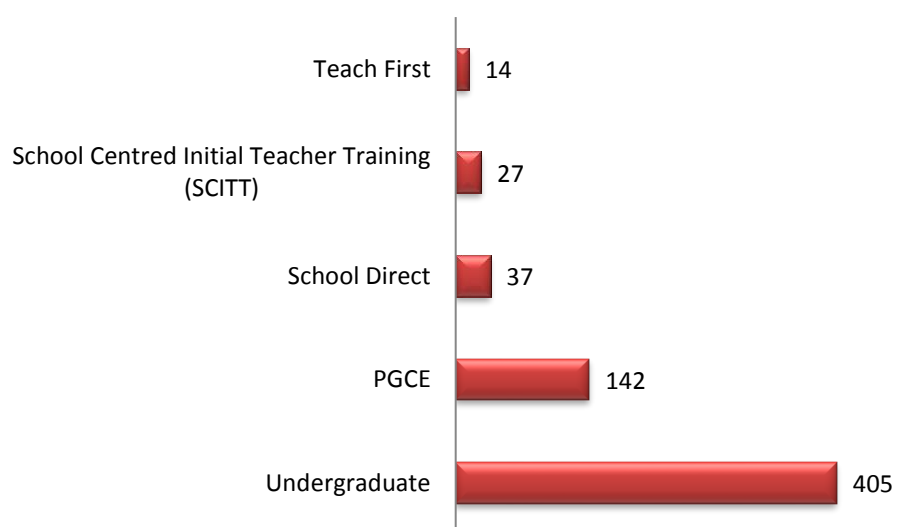


Figure 2: Breakdown of sample across ITE programmes

From a sample of 625 in Phase Two, participants were required to identify the specialist nature of their programme and the key stage age phase of their last school-based placement. For those on a school-based route, responses were based on the previous half-term. A total of 496 identified that they were on a generalist programme for primary PE. The

remainder of the sample (129) were enrolled on a specialism¹ route ranging across school (19) and university-based settings (110).

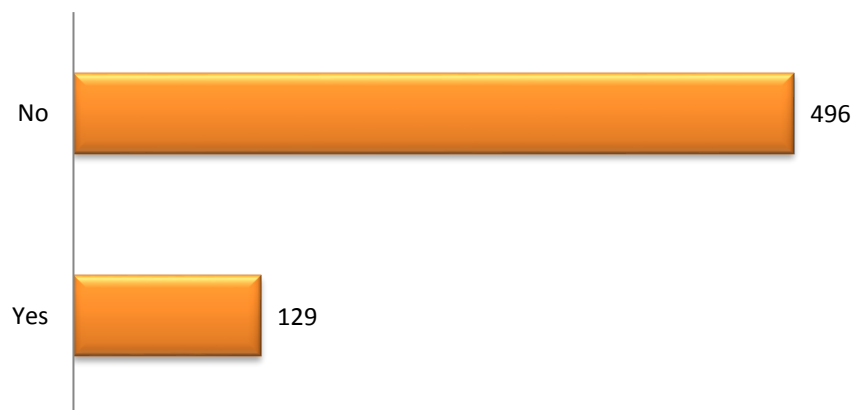


Figure 3: Breakdown of sample who were on a specialist route

The sample had been placed in a range of primary age contexts during their most recent (or equiv.) assessed school-based placement.

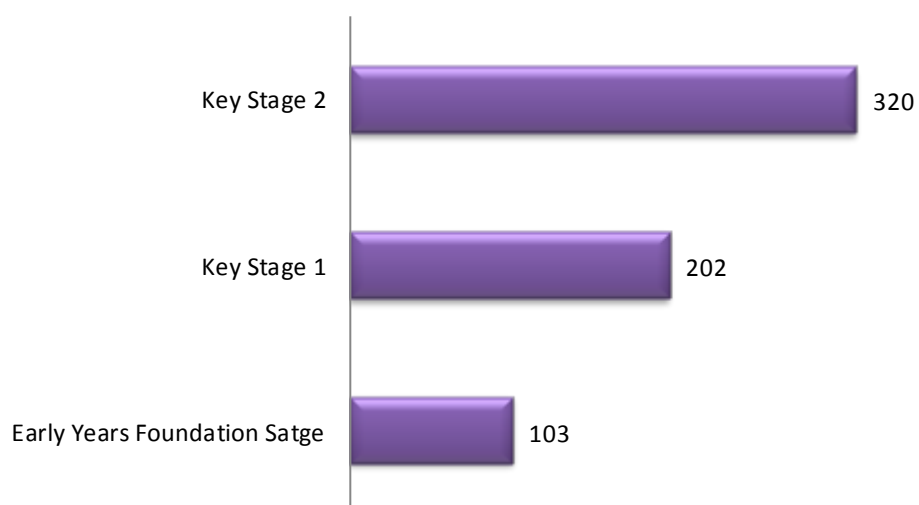


Figure 4: Key stage placements across the sample

¹ A specialism route was determined by the specific nature and structure of the ITE programme. For those on the PGCE route this was determined by a nationally identified and funded programme and for those on undergraduate routes, this was determined by subject specialism pathways within these programmes

Ethics

The research was planned and conducted in full compliance with ethical guidelines provided by the British Educational Research Association (BERA) (BERA 2011). Ethical clearance was granted from the University of Winchester prior to the commencement of the research. All participation was voluntary and anonymous. ITE providers were able to assess the motives and intentions of the research before making a decision about their participation through telephone conversations, face to face discussions, emails and an information sheet. The information sheet provided an overview of the study, the nature of participant involvement, the right to withdraw and issues pertaining to confidentiality (BERA 2011). It also formed the introduction of the online survey, ensuring participants who had not read the information sheet prior to accessing the survey link was fully aware of their involvement. Participants were also informed that submission of the survey would act as their informed consent, but their right to withdraw would not be affected (BERA 2011). Iphofen (2011) describes this as 'fluidity' within the consent process, where the initial consent to take part is not seen as a once-and-for-all act. Access to the raw data is made via a secure login and by the lead researcher only.

Analysis of Data

The data collected through this study was analysed using three different approaches.

- thematic analysis and citation count of qualitative data
- descriptive statistical analysis (using mode as a central tendency measure)
- inferential statistical analysis (using SPSS software)

Questions (Q) 18-43 generated data from participants about their confidence across a range of professional knowledge areas. A ranking of 0-5 was used to indicate confidence levels, with zero being the lowest and five being the highest (Cramer and Howitt 2004). The reason for using a five point scale was to measure the intensity of individual responses across the sample (Newby 2010) and to determine the range of variation that existed. The ranking values of 0-5 are not considered to be a scientific measurement of confidence, but a 'pseudo-quantification' to enabled participants to communicate feelings from abstract to recognisable form (Gorard and Taylor 2011). Using a numerical scale was to also help extract and organise the large amount of data that was obtained (Newby 2010).

A central tendency measure of mode value was used to index participant responses for the following quantitative responses:

- number of taught hours on the programme*
- number of lessons taught
- number of lessons observed
- overall confidence to teach PE
- overall willingness to teach PE
- confidence across professional knowledge areas

Further inferential statistical analysis was undertaken to explore the relationships between:

- number of lessons taught and overall confidence
- number of lessons taught and willingness to teach
- programme route and confidence
- specialist/non-specialist and confidence

For questions that produced qualitative data, responses were exported into a Word document where a search was undertaken to identify reoccurring themes. All themes were then tallied according to the frequency of their citations.

FINDINGS

This section presents the findings from the online survey taken from Phase One and Phase Two of the research. The data has been organised in the following way:

- Phase One findings
- Phase Two findings
- Overall responses
- Programme routes
- Specialism/Non-specialism
- Final year trainees
- Overall positives and barriers to development

Phase One

Four multiple choice questions were asked in Phase One to determine a general context of school-based experiences and the nature of enquiry for phase two:

- What programme of ITE are you currently on?
- Did you teach PE when you were on your last school placement?
- Who mainly taught your class PE?
- Who mainly taught PE across the school?

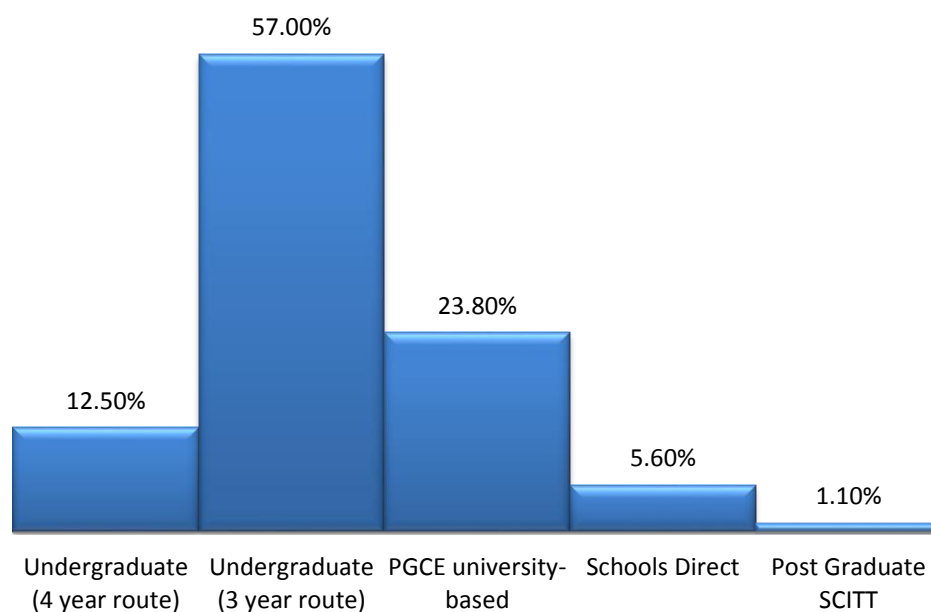


Figure 5: Breakdown of sample across ITE programme routes

Lessons Taught

Q2 of Phase One specifically asked how many lessons of PE the sample taught during their last school experience.

Figure 2 presents the responses to this question. The mode response was 0 lessons taught (48.7%) and a combined figure of 4-6 lessons suggested that only 12.3% of the sample were able to teach a series of lessons².

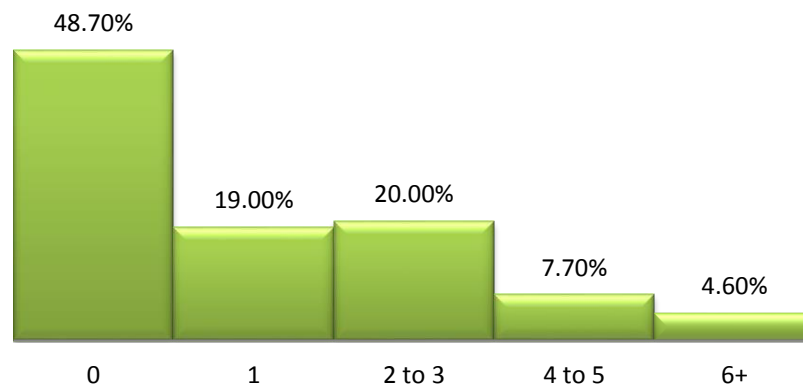


Figure 6: The number of lessons taught by PSTs' on their most recent school placement

Who Taught Physical Education to the Class?

The aim of question three was to identify who was delivering PE to the class and therefore determine who PSTs were experiencing the teaching of PE from.

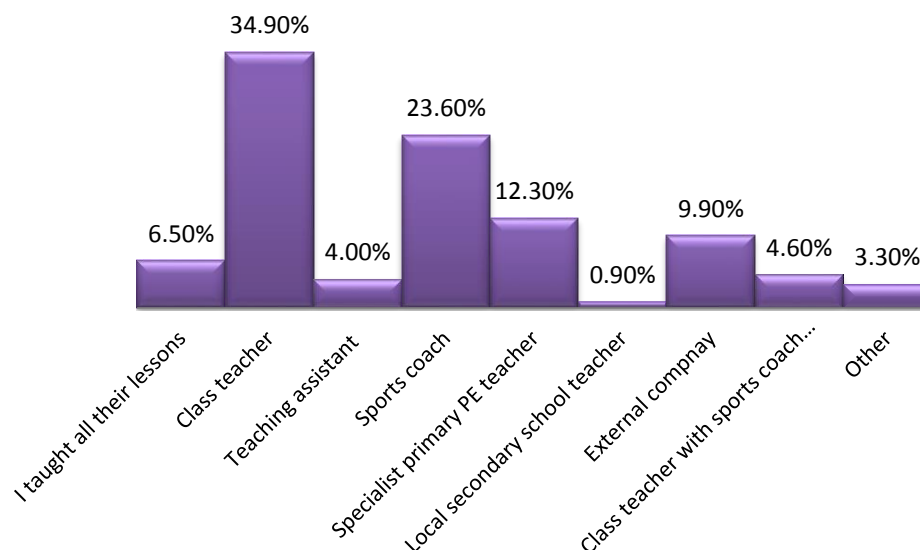


Figure 7: Breakdown of who taught PE within the PSTs' placement class

² A series of lessons has been characterised by 4+ lessons to ensure the PST can build upon prior learning, identify progression and evidence consistency

The data in Figure 3 revealed that 34.9% of lessons were being taught by the class teacher, with a further 33.5% being delivered by an outsourced company/sports coach without a teacher present. Only 4.6% of the sample identified that sports coaches were working alongside the class teacher during a lesson. In total 47.1% of lessons were delivered by a non-qualified teacher with a further 12.4% stating that a 'specialist' was responsible for the teaching of the subject.

Who Taught Physical Education across the School?

The aim of this question was to see how PSTs' experienced the teaching of PE across the school and to help indicate if their experience was contextualised to their class, or if it represented a 'norm' across the whole school.

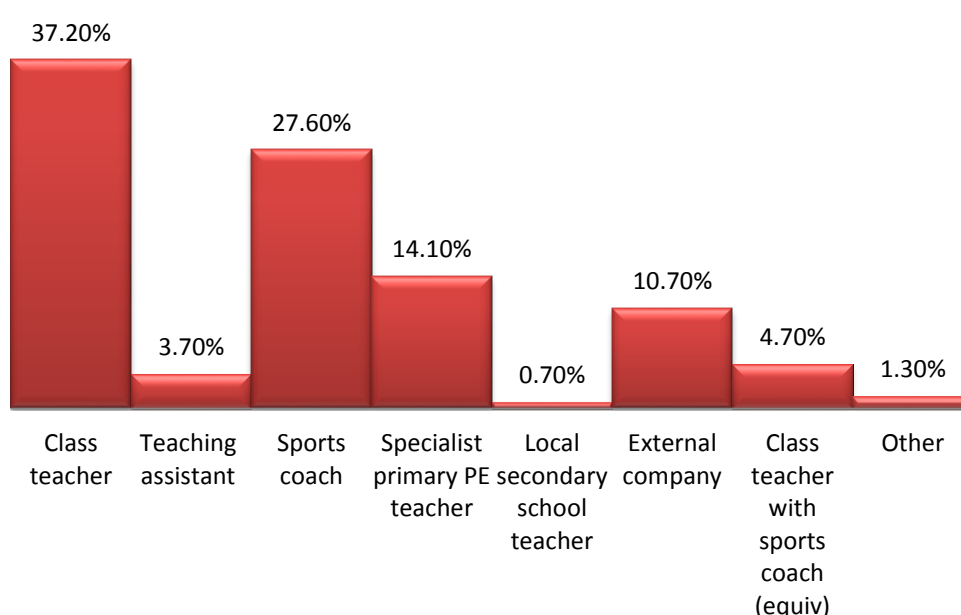


Figure 8: Breakdown of who taught PE within the PSTs' placement school

Figure 8 identified across the school, that 38.3% of lessons were delivered by an outsourced company or sports coach, with only 37.2% delivered by the class teacher. A total of 4.7% stated that they had observed the teacher working alongside the sports coach (or equiv.) during curriculum time.

Summary of Qualitative Responses

The final part of this survey allowed participants to leave an additional comment if the options provided did not relate to their specific experience of who delivered PE during their placement. Responses to this question indicated that an extensive wider-workforce existed, with a number of people delivering PE who were considered to be non-qualified 'support staff' (AfPE 2012).

These included the following:

- swimming teacher
- teaching assistants
- school governors
- dance teachers
- university/college/school students

The data obtained from this question also indicated that 24 participants' commented that no PE took place during their placement. The main reasons attributed to this were due to the Christmas production and the specific context of their placement e.g. early years, special educational needs and behavioural settings. Many of the participants commented that in these settings children received playtime instead of a structured PE lesson.

Implications from Phase One

The data obtained from Phase One indicated that nearly 50% of PSTs were unable to teach PE when on their most recent assessed school placement. For those who were able to teach, experiences tended to be isolated with only 12.3% teaching a series of four or more lessons. For the majority, PE was experienced by non-QTS support staff, with over 38% forming a teaching workforce of sports coaches and external companies. Other adults were recognised as deliverers of PE, including college students, secondary school pupils, university students and teaching assistants. Phase one highlighted a need to further investigate the experiences of PST during their ITE programme and determine the factors that have enabled or prevented their engagement in the subject.

Phase Two

Forty-seven questions were asked in Phase Two to develop a comprehensive overview of PSTs' ITE experiences in primary PE.

Overall Results across the Sample

How many PE lessons children received (typically) per week

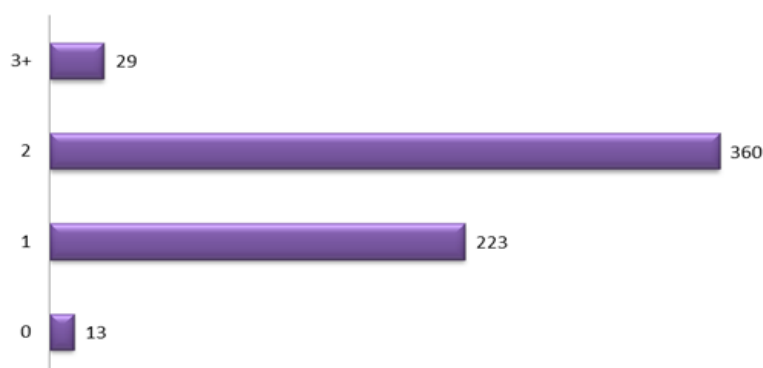


Figure 9: Number of timetables PE lessons taught per week

Most children received 2 hours of curriculum PE per week (62%), with 29 responses indicating their class received 3 hours per week. A further 223 (35%) received one lesson per week with 13 of the not receiving any PE.

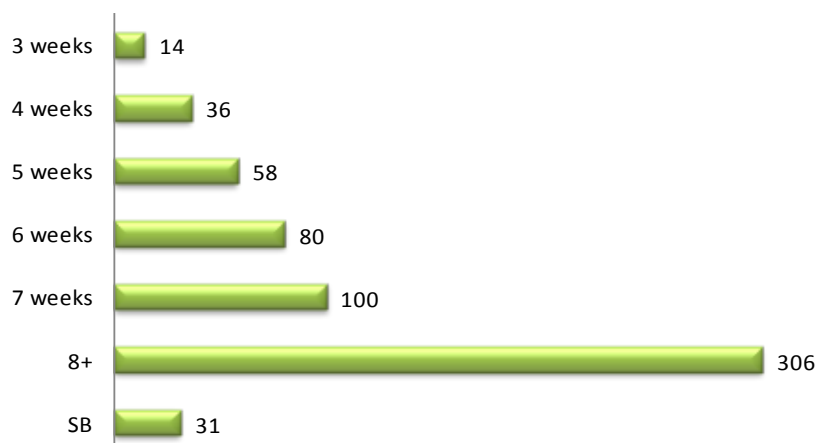


Figure 10: Duration of the school-based placement

The mean average for the number of weeks that the PSTs' spent in school during the last assessed school placement was 5.5 weeks. When this figure is multiplied with the average number of PE lessons the class received per week (1.6 lessons), a total average of 8.8 lessons (rounded up to 9) is calculated for the potential average number of lessons that could have been accessed during a placement.

Who Taught Physical Education?

The first phase of the research indicated a varied and diverse workforce taught primary PE. The responses given in Phase One informed the multiple choice answers for the same question in Phase Two. This survey question required participants to identify who taught PE to their class in order to determine:

- the wider-workforce involved in teaching PE in primary schools
- the involvement of teachers in the delivery of primary PE
- the potential influence of the wider-workforce on a PST

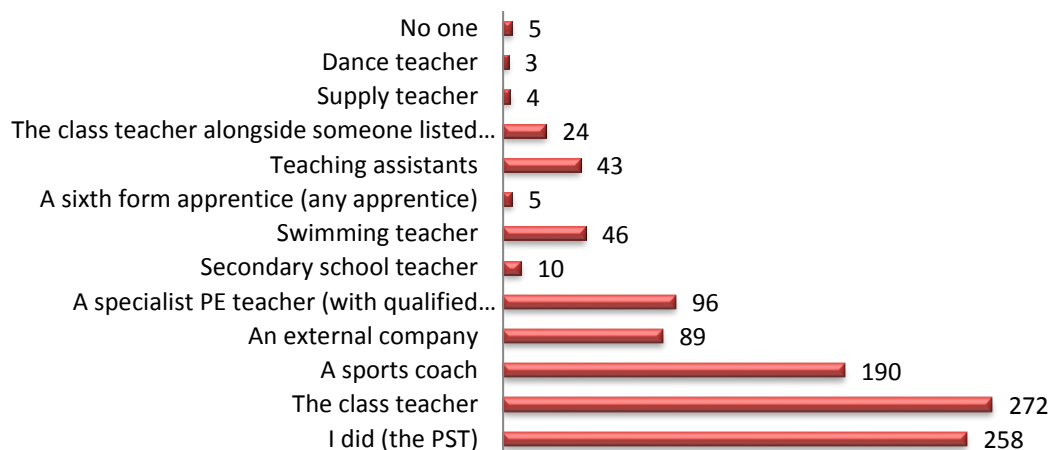


Figure 11: Overview of who taught PE to the PST's placement class?

Consistent with the Phase One findings, a varied workforce for primary PE was also presented in Phase Two, ranging from: qualified primary educators, non-qualified support staff and outsourced external providers. The data indicates that 36% of the PE workforce did not have Qualified Teacher Status, with a further 25% of lessons being taught by the PST. It was noted that 2.3% of lessons were taught by the class teacher alongside another identified 'professional' (sports coach or other).

	0 Hours	1- 5 Hours	6 - 10 Hours	11- 15 Hours	16 - 20 Hours	21+ Hours
All Data	0.5%	14.9%	29.1%	16.8%	12.2%	26.6%
SP	0.0%	2.3%	3.9%	6.2%	10.9%	76.7%
NSP	0.6%	18.1%	35.7%	19.6%	12.5%	13.5%
FY	0.3%	24.4%	27.7%	13.4%	7.5%	26.7%
SB	1.3%	38.5%	25.6%	11.5%	2.6%	20.5%
UG	0.0%	6.9%	27.7%	18.3%	15.6%	31.6%
PGCE	1.4%	24.6%	35.2%	15.5%	7.7%	15.5%

Table 1: Number of hours of taught programme input

Overall, the mode response for number of taught hours during an ITE programme for PE was 6 – 10 hours. Specialist (SP) PSTs received a proportionately higher amount of taught contact hours, with a mode response of 21+ hours. School-based routes offered the least number of taught hours compared to other ITE programmes, with undergraduate routes providing the most.

Number of Lessons Taught						
	0	1	2	3	4	5+
All Data	30.4%	16.6%	13.3%	10.7%	7.7%	21.3%
SP	8.5%	11.6%	11.6%	9.3%	12.4%	46.5%
NSP	36.1%	17.9%	13.7%	11.1%	6.5%	14.7%
FY	18.6%	13.7%	12.7%	13.4%	8.5%	33.2%
SB	25.6%	15.4%	15.4%	7.7%	5.1%	30.8%
UG	33.8%	19.3%	12.8%	9.9%	7.9%	16.3%
PGCE	23.2%	9.9%	13.4%	14.8%	8.5%	30.3%

Table 2: Number of lessons taught

The overall mode response for the number of lessons taught, based upon the last school placement, was 0 lessons (30.8%), with non-specialists (NSPs) and undergraduates (UGs) showing a higher mode response than the overall sample. This indicates that as a group, NSP's and UGs are less likely to receive opportunities to teach PE when in school. SPs taught the highest number of lessons. Only 39.9% were able to teach a series of lessons (3+ lessons) and less than 21.3% of the sample had the opportunity to teach the average number of lessons available to them (of 9 lessons). This figure is higher for SP PSTs (46.5%) but much lower for those on a NSP pathway (14.7%). A thematic analysis was undertaken of the responses from participants who had taught no lessons at all, to further identify what reasons were attributed for this.

Themed response	Number of responses
Outsourced Providers	76
Priority of Subject in Training	39
Planning, preparation and assessment (PPA) time	32
Subject value and culture	11
Student Competence	9
Student Confidence	5

Table 3: Reasons for no lessons taught (thematically organised)

The largest reason cited (76) for 'no lessons taught' was due to external providers delivering the primary PE curriculum. Many commented that they were not allowed to teach because the coaches were paid, or because the sports coaches were unable to accommodate them in lessons (58).

"I never had the option, the sports coach was very set in their ways...they were not happy about me doing a lesson"

"The teaching was all done by the coaches and the school were protective of taking away the specialists job"

*"Teaching of PE was left to the specialist teacher from an outside company.
There was no option for me to teach PE."*

The third highest reason cited for not teaching PE was due to planning preparation and assessment (PPA) time being timetabled during the PE lesson. A number of comments connecting outsourced providers alongside PPA were made, suggesting that a wider-workforce other than teachers are providing a solution to the PPA problem, thus allowing the PST to work alongside the class teacher in the planning and preparation of other subjects. However, further references were made to external providers outside of the PPA issue, suggesting the place of external providers delivering the PE curriculum is not solely due to staffing teachers' non-contact time.

"The coach always did it. It was also the only available time for me to prep additional lessons. I am aware that P.E. is very important and I know I should have been watching the coaches or teaching P.E. myself, but my confidence also hindered this. This made me not want to teach P.E. and ultimately avoid the subject."

The terms 'coach' and 'specialist' were used synonymously to describe external providers. It was felt that external providers were more 'specialist' than the class teacher, with a number of references suggesting that external providers were the 'specialist teachers'.

"Specialist teacher came in to take PE, PE was PPA time for classroom teachers"
"Sessions were led by a specialist PE teacher. I was involved however, helping out with the occasional drill."

Confusion arose around competence, highlighting a number of misconceptions that a PST cannot teach PE when on a school placement. Although this was not a dominating theme in the data, it does indicate that a PST's experience will be subject to the central messages that ITE providers and school partners give.

"I was not allowed to teach PE"
"I was told I couldn't teach PE by my uni"

The second highest reason presented by the sample in response to why 0 lessons taught was the mode response, was due to the priority of PE in the ITE programme. For many, no clear reason was offered other than there was 'no opportunity to teach' and "PE was not deemed to be relevant to my professional development according to my Classroom Teacher/Mentor"; but suggestions by others in the sample alluded that this was due to a priority of the core subjects over PE.

"Little opportunity- more of a focus on core subjects to be taught - English and math"

"Didn't have time as it wasn't a priority"

Other factors that resulted in the PSTs not teaching PE when in school included the priority of the subject within the school culture and curriculum and an individual's confidence to have a go. Student confidence, however, was contained to only a small number of isolated contexts (5).

			11. c. How many lessons did you teach?	46. How would you rank your willingness to teach physical education?
Spearman's rho	11.c. How many lessons did you teach?	Correlation Coefficient	1.000	.323**
		Sig. (2-tailed)	.	.000
		N	625	625
	46. How would you rank your willingness to teach physical education?	Correlation Coefficient	.323**	1.000
		Sig. (2-tailed)	.000	.
		N	625	625

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4: Spearman's correlation analysis of lessons taught against willingness to teach

A statistical analysis was undertaken to identify if a PST's willingness to teach was a factor in the number of lessons taught when on placement. The data set indicated a significant, positive weak correlation between the number of lessons taught and willingness to teach PE, suggesting that willingness to teach was not a factor in the number of lessons taught.

			11.c. How many lessons did you teach?	45. How would you rank your overall confidence to teach physical education (at the relative stage of your training)?
Spearman's rho	11.c. How many lessons did you teach?	Correlation Coefficient Sig. (2-tailed)	1.000 . 625	.461** .000 625
	45. How would you rank your overall confidence to teach physical education (at the relative stage of your training)?	Correlation Coefficient Sig. (2-tailed) N	.461** .000 625	1.000 . 625

** . Correlation is significant at the 0.01 level (2-tailed).

Table 5: Spearman's correlation analysis of lessons taught against confidence to teach

A further statistical analysis was undertaken to identify if a correlation existed between a PST's confidence to teach and the number of lessons taught. In this data set there is a statistically significant moderate correlation between the number of lessons taught and confidence to teach PE relative to the stage of training. These findings suggest that the number of lessons a PST teaches in school will influence their overall confidence to teach PE.

Number of Lessons Observed						
	0	1	2	3	4	5+
All Data	9.6%	18.7%	21.1%	12.6%	8.6%	29.3%
SP	10.9%	17.1%	17.8%	10.9%	7.0%	36.4%
NSP	9.3%	19.2%	22.0%	13.1%	9.1%	27.4%
FY	9.4%	17.9%	21.5%	13.0%	6.5%	31.6%
SB	19.2%	17.9%	12.8%	15.4%	5.1%	29.5%
UG	8.1%	20.5%	22.5%	13.3%	9.4%	26.2%
PGCE	8.5%	14.1%	21.8%	9.2%	8.5%	38.0%

Table 6: Number of lessons observed

The overall mode response for the number of lessons observed was 5+ lessons (29.35%) and was the mode across all the sub-categories, followed by 2 lessons and then 1 lesson. For UG and PGCE routes, the least popular response was 0 lessons. School-based routes had the highest percentage overall for 0 lessons observed. SP, final year (FY) and PGCE students all produced a response higher than the overall sample for the mode of 5+ lessons suggesting these PSTs are more likely to observe PE when on placement.

Feedback Received

When asked the type of feedback received from teaching PE, the mode response across the sample was no feedback received (219). When feedback was given 205 of the sample reported receiving verbal and written feedback combined, however a total of 400 (64%) of the sample reported not receiving any written feedback in PE as part of their teaching experience.

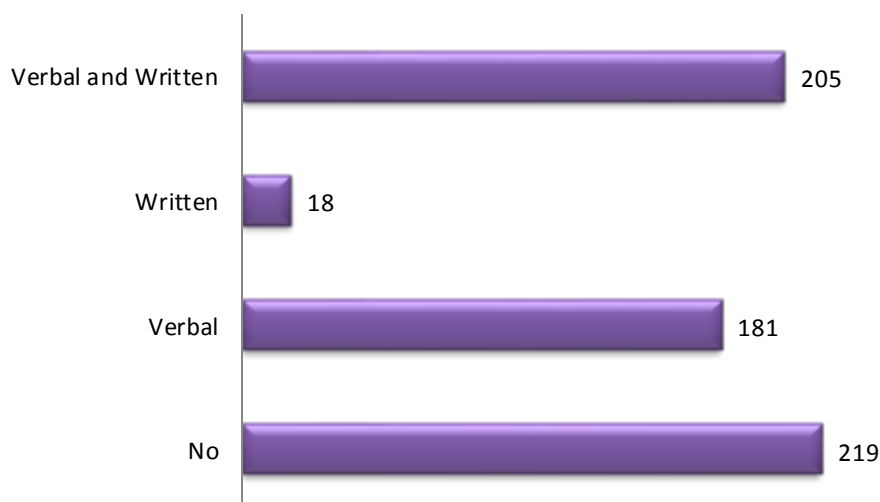


Figure 12: Feedback received on teaching PE

A further question revealed who PST was receiving feedback from. The highest number of citations was from the class teacher (363) followed by not applicable (207) and then the university tutor (69).

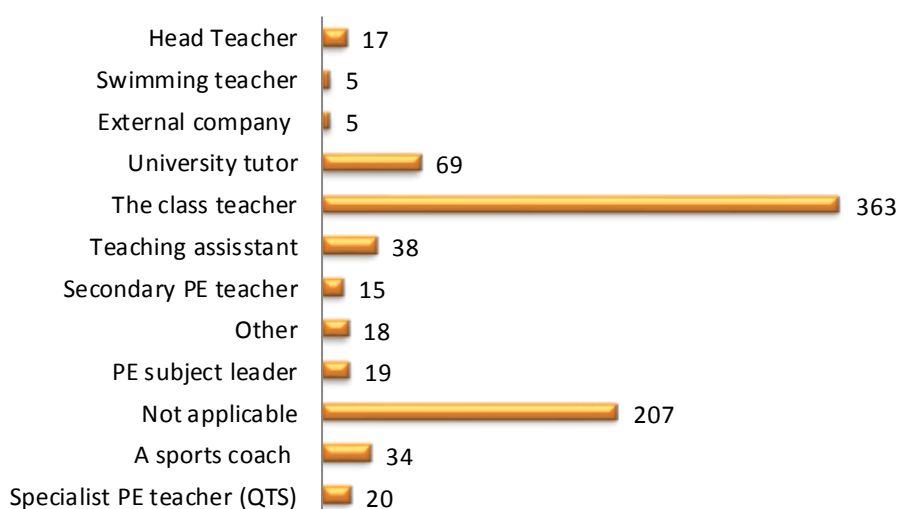


Figure 13: Who feedback was received from

What were you asked to teach?

The survey required participants to share what they were asked to teach for their PE lesson(s), to identify:

- The balance of curriculum experienced
- The development of content knowledge in school-based experiences

An analysis of the responses revealed the following themes and percentage of citations against each theme.

Activity Content Taught	% Citation
Games activities	32%
Fundamental movement skills	18%
Gymnastic activities	14%
Dance activities	13%
Athletic activities	8%
Swimming activities	4%
Outdoor and adventurous activities	2%
Sports day	2%
Fitness	2%
Warm ups	1%

Table 7: Content of PE taught

Breakdown of Games Taught		
Invasion total (n-76)	Striking and Fielding (n-42)	Net and Wall (n-22)
Basketball Benchball Dodgeball Football Hockey Invasion (generic) Netball Rugby Ultimate Frisbee	Cricket Rounders Striking and fielding (generic)	Badminton Net games (generic) Tennis
Other Games (n-19)	Target Games (n-4)	
Ball games Games (general) Team Games Quidditch Outdoor games Competitive games	Skittleball Curling Golf	

Table 8: Breakdown of games areas taught

The most dominant theme was in relation to the teaching of games activities (32%) followed by fundamental movement skills (FMS) (18%), gymnastic activities (14%) and dance activities (13%). Participants articulated what they taught mainly through the language of

the activity areas³. The most dominant type of games taught was invasion games, specifically netball, hockey and football. There were also references to games such as dodgeball and benchball, where questions over safe practice are cautioned (AfPE 2012). In nearly all the examples given, the games PST were asked to teach related to traditional sporting activities, with a small number (19) referring to specific games or generic made-up versions of traditional sports.

Responses referring to FMS showed a varied use of language to describe the teaching of movement learning.

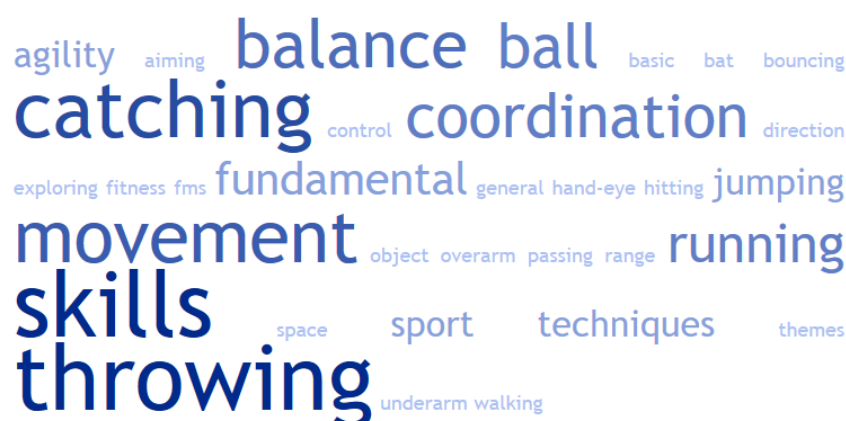


Figure 14: Word cloud depicting most common language used to depict FMS

The main reference to movement was concerned with the teaching of skills, particularly the skills of throwing, catching, running and balancing. Other skills were mentioned e.g. ball bouncing and striking, but these were in more isolated contexts.

Overall Confidence

Overall Confidence to Teach PE						
	0	1	2	3	4	5
All Data	2.1%	7.2%	15.2%	33.1%	29.0%	13.4%
SP	0.0%	0.0%	2.3%	11.6%	44.2%	41.9%
NSP	2.6%	9.1%	18.5%	38.7%	25.0%	6.0%
FY	2.6%	5.5%	14.0%	25.7%	32.2%	19.9%
SB	3.8%	7.7%	15.4%	25.6%	26.9%	20.5%
UG	1.5%	7.7%	15.8%	35.3%	29.4%	10.4%
PGCE	2.8%	5.6%	13.4%	31.0%	28.9%	18.3%

Table 9: Overall confidence to teach PE

The overall mode response for perceived confidence to teach PE was 3/5 followed the second most frequent response at 4/5. The least frequent response was 0/5. This data set

³ Activity areas refer the National Curriculum six activity areas (DfE, 1999) of games activities, gymnastic activities, dance activities, swimming activities, athletics activities and outdoor and adventurous activities

presents a moderate to high confidence level to teach PE across the sample. SP PSTs provided the highest mode confidence response with 44.2% placing their perceived confidence at 4/5. The SP group also returned a 0% response for 0-1/5 in confidence.

Overall Willingness

Overall Willingness to teach PE						
	0	1	2	3	4	5
All Data	1.3%	2.7%	5.9%	15.5%	27.8%	46.7%
SP	0.0%	0.0%	0.8%	1.6%	14.0%	83.7%
NSP	1.6%	3.4%	7.3%	19.2%	31.5%	37.1%
FY	1.3%	2.3%	5.9%	12.4%	23.8%	54.4%
SB	0.0%	6.4%	10.3%	12.8%	19.2%	51.3%
UG	1.5%	2.7%	5.4%	16.3%	30.9%	43.2%
PGCE	1.4%	0.7%	4.9%	14.8%	23.9%	54.2%

Table 10: Overall willingness to teach PE

The overall mode response for willingness to teach PE was 5/5 followed the second most frequent response at 4/5. The least frequent response was 0/5. This data set presents a high level of willingness to teach PE across the sample. SP PSTs provided the highest mode confidence response with 83.7%. The SP group also returned a 0% response for 0-1/5.

Development of Professional Knowledge

Questions 18-44 of the online survey required the sample to rank their perceived confidence across a breadth of professional knowledge areas (adapted Randall's, 2016 PKM).

	Most Confident (overall)	Least Confident (overall)
1	Q.32 Health, fitness and well-being Mode 4/5 (n-236)	Q.27 Swimming activities Mode 0/5 (n-147)
2	Q38. Safe practice Mode 4/5 (n-231)	Q41 Summative assessment Mode 3/5 (n-209)
3	Q22. Fundamental movement skills Mode 4/5 (n-228)	Q19 Multi-ability model Mode 3/5 (n-203)
4	Q.25 Games activities Mode 4/5 (n-223)	

Table 11: Most/least overall confidence of professional knowledge

Four areas of professional knowledge were identified as having the overall highest confidence mode, with the area of health, fitness and well-being obtaining the highest mode of 4/5 (236). This was followed by knowledge of safe practice, FMS and games activities. Swimming obtained the lowest score of confidence with a mode response of 0/5 (147), followed by summative assessment and teaching through a multi-ability model.

Programme Routes

The following section presents data across the different programme routes amongst the sample. Aspects of the survey have been brought together to show a complete picture for each programme.

Undergraduate Programme

Mode Responses for Undergraduate Programme Routes				
Hours of taught input	Number of lessons taught	Number of lessons observed	Overall confidence	Overall willingness
21+ hours (31.6%)	0 lessons (33.8%)	5+ (26.2%)	3/5 (35.3%)	5/5 (43.2%)
Most confident areas of professional knowledge				
1.Q.38 Safe practice Mode 4/5 (n-156)	2.Q.22 Fundamental movement skills Mode 4/5 (n-154)	3.Q.32 Health, fitness and well-being Mode 4/5 (n-152)	4.Q.25 Games activities Mode 4/5 (n-148)	5. Q36 Behaviour management Mode 4/5 (n-135)
Least confident areas of professional knowledge				
1.Q.27 Swimming activities Mode 0/5 (n-98)	2.Q.40 Formative assessment Mode 3/5 (n-142)	3. Q41 Summative assessment Mode 3/5 (n-141)	4. Q.19 Multi-ability model Mode 3/5 (n-136)	5. Q23 Stages and progression of movement skills Mode 3/5 (n-132)

Table 12: Mode response for undergraduate routes

Participants on an undergraduate programme reported to have a mode response of 21+ hours as part of their taught input for PE. This was the highest amount of time comparatively to the other programmes. Whilst for many PSTs' there was opportunity to observe PE in school, the number of lessons they were able to teach presented a contrasting picture, with a mode response of 0 lessons. PST's further reported that confidence was at a mid-value of 3/5 but willingness to teach was high. Undergraduate PSTs' were most confident in areas of professional knowledge relating to safe practice, FMS and health, fitness and well-being but showed very low confidence in swimming activities and assessment.

Postgraduate Programmes

Mode Responses for Post-Graduate Programme Routes				
Hours of taught input	Number of lessons taught	Number of lessons observed	Overall confidence	Overall willingness
6-10 hours (35.2%)	5+ (30.3%)	5+ (38.0%)	3/5 (31.0%)	5/5 (54.2%)
Most confident areas of professional knowledge				
1.Q.32 Health fitness and well-being Mode 4/5 (n-54)	2.Q.18 The aims of PE Mode 4/5 (n-53)	3.Q34 Whole school activities Mode 4/5 (n-53)	4.Q.38 Safe practice Mode 4/5 (n-51)	5.Q23 Stages and progressions of skill development Mode 4/5 (n-48)
Least confident areas of professional knowledge				
1.Q.27 Swimming activities Mode 2/5 (n-30)	2.Q.41 Summative assessment Mode 3/5 (n-50)	3.Q.19 Multi-ability model Mode 3/5 (n-47)	4.Q20 Current issues and policy Mode 3/5 (n-46)	5.Q.37 Gifted and talented provision Mode 3/5 (n-41)

Table 13: Mode response for post-graduate programme routes

Participants on postgraduate programmes reported a mode response 6 -10 hours of taught input for PE. Engagement in PE was further supported with modes of 5+ lessons for teaching and observing PE lessons. Confidence was at a mid-value of 3/5 but willingness to teach was high with a mode of 5/5. Postgraduate PSTs' were most confident in areas of professional knowledge relating to health, fitness and well-being, articulating the aims of PE and engagement in whole school activities, but showed very low confidence in swimming activities, assessment and multi-ability mode to teaching.

School-Based Programme

Mode Responses for School-Based Programme Routes				
Hours of taught input	Number of lessons taught	Number of lessons observed	Overall confidence	Overall willingness
1-5 hours (38.5%)	5+ (30.8%)	5+ (29.5%)	4/5 (26.9%)	5/5 (51.3%)
Most confident areas of professional knowledge				
1.Q.36 Behaviour management Mode 5/5 (n-26)	2.Q.32 Health, fitness and well-being Mode 4/5 (n-54)	3.Q.25 Games activities Mode 4/5 (n-28)	4.Q.22. Fundamental movement skill Mode 4/5 (n-27)	5. Q.29 Athletic activities Mode 4/5 (n-26)
Least confident areas of professional knowledge				
1.Q.27 Swimming activities Mode 0/5 (n-20)	2.Q.21. Investigating practice and research Mode 1/5 (n-19)	3.Q.35 Lesson planning Mode 1/5 (n-19)	4.Q.31 Statutory frameworks Mode 2/5 (n-44)	5.Q.20 Current issues and policy Mode 3/5 (n-23)

Table 14: Mode response for school-based programme routes

Participants on school-based programmes reported a mode response 1-5 hours of taught input for PE. This was the lowest amount of time compared to other programme routes in the study. However opportunities to teach and observe PE presented modes of 5+ lessons. Overall, there were high levels of confidence in PE 4/5 and willingness with a mode of 5/5. School-based PSTs were most confident in areas of professional knowledge relating to behaviour management, health, fitness and well-being and games activities, but showed very low confidence in swimming activities, investigating and researching practice and lesson planning.

A one way ANOVA was conducted to look for differences in mean confidence and willingness to teach scores in these groups.

		Sum of Squares	df	Mean Square	F	Sig.
45. How would you rank your overall confidence to teach physical education (at the relative stage of your training)?	Between Groups	18.332	4	4.583	3.282	.011
	Within Groups	865.668	620	1.396		
	Total	884.000	624			
46. How would you rank your willingness to teach physical education?	Between Groups	16.167	4	4.042	3.134	.014
	Within Groups	799.523	620	1.290		
	Total	815.690	624			

Table 15: One way ANOVA test for differences in confidence and willingness to teach

The results of the ANOVA showed differences were detected between the means of the groups, therefore Post Hoc paired comparisons were made to find where these differences were.

Dependent Variable	(I) 3. What programme of initial teacher education are you on?	(J) 3. What programme of initial teacher education are you on?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
45. How would you rank your overall confidence to teach physical education (at the relative stage of your training)?	PGCE	School Centred Initial Teacher Training (SCITT)	-.528	.248	.337	-1.23	.17
		School Direct	.405	.218	.638	-.21	1.02
		Teach First	.324	.331	1.000	-.61	1.26
		Undergraduate	.178	.115	1.000	-.15	.50
	School Centred Initial Teacher Training (SCITT)	PGCE	.528	.248	.337	-.17	1.23
		School Direct	.933*	.299	.019	.09	1.78
		Teach First	.852	.389	.290	-.24	1.95
		Undergraduate	.706*	.235	.027	.04	1.37
	School Direct	PGCE	-.405	.218	.638	-1.02	.21
		School Centred Initial Teacher Training (SCITT)	-.933*	.299	.019	-1.78	-.09
		Teach First	-.081	.371	1.000	-1.13	.96
		Undergraduate	-.227	.203	1.000	-.80	.34
	Teach First	PGCE	-.324	.331	1.000	-1.26	.61
		School Centred Initial Teacher Training (SCITT)	-.852	.389	.290	-1.95	.24
		School Direct	.081	.371	1.000	-.96	1.13
		Undergraduate	-.146	.321	1.000	-1.05	.76
	Undergraduate	PGCE	-.178	.115	1.000	-.50	.15
		School Centred Initial Teacher Training (SCITT)	-.706*	.235	.027	-1.37	-.04
		School Direct	.227	.203	1.000	-.34	.80
		Teach First	.146	.321	1.000	-.76	1.05
46. How would you rank your willingness to teach physical education?	PGCE	School Centred Initial Teacher Training (SCITT)	-.226	.238	1.000	-.90	.45
		School Direct	.326	.210	1.000	-.26	.92
		Teach First	.861	.318	.070	-.03	1.76
		Undergraduate	.199	.111	.735	-.11	.51
	School Centred Initial Teacher Training (SCITT)	PGCE	.226	.238	1.000	-.45	.90
		School Direct	.553	.287	.550	-.26	1.36
		Teach First	1.087*	.374	.038	.03	2.14
		Undergraduate	.425	.226	.604	-.21	1.06
	School Direct	PGCE	-.326	.210	1.000	-.92	.26
		School Centred Initial Teacher Training (SCITT)	-.553	.287	.550	-1.36	.26
		Teach First	.535	.356	1.000	-.47	1.54
		Undergraduate	-.128	.195	1.000	-.68	.42
	Teach First	PGCE	-.861	.318	.070	-1.76	.03
		School Centred Initial Teacher Training (SCITT)	-1.087*	.374	.038	-2.14	-.03
		School Direct	-.535	.356	1.000	-1.54	.47
		Undergraduate	-.663	.309	.322	-1.53	.21
	Undergraduate	PGCE	-.199	.111	.735	-.51	.11
		School Centred Initial Teacher Training (SCITT)	-.425	.226	.604	-1.06	.21
		School Direct	.128	.195	1.000	-.42	.68
		Teach First	.663	.309	.322	-.21	1.53

*. The mean difference is significant at the 0.05 level.

Table 16: Multiple comparisons of confidence against programme routes

Significant differences between mean scores were flagged, as were the size of the differences (mean difference column). The results showed the following:

- SCITT pathways showed significantly higher confidence scores than School Direct.
- SCITT showed significantly higher confidence scores than Undergraduate programme routes
- A general SCITT programme showed significantly higher willingness to teach scores than those on a Teach First route

Final Year

Out of the sample of 625, a total of 307 (49.1%) were on a final year stage or route of study. The data below is an overall picture of all finalists, regardless of specialism or programme route.

Mode Responses from Final Year Participants				
Hours of taught input	Number of lessons taught	Number of lessons observed	Overall confidence	Overall willingness
6-10 hours (27.7%)	5+ (33.2%)	5+ (31.6%)	4/5 (32.2%)	5/5 (54.4%)
Most confident areas of professional knowledge				
1.Q25 Games activities Mode 5/5 (n-99)	2.Q32 Health, fitness and well-being Mode 4/5 (n-118)	3.Q38 Safe practice Mode 4/5 (n-112)	5. Q18 Aims of PE Mode 4/5 (n-110)	5. Q34 Whole school activities Mode 4/5 (n-106)
Least confident areas of professional knowledge				
1.Q27 Swimming activities Mode 3/5 (n-71)	2.Q41 Summative assessment Mode 3/5 (n-98)	3.Q19 Multi-ability model Mode 3/5 (n-89)	4.Q20 Current issues Mode 3/5 (n-87)	5.Q39 Inclusive approaches Mode 3/5 (n-83)

Table 17: Mode response of final year participants

Participants, who were in their final year and at the end of their ITE programme, reported a mode response 6-10 hours of taught input for PE. Opportunities to teach PE were 5+ lessons and were in contrast to the overall mode of 0 lessons. A mode of 5+ lessons was also for opportunities to observe practice. Overall, there were high levels of confidence to teach PE with a mode of 4/5 and a high level of willingness with a mode of 5/5. FY PSTs were most confident in areas of professional knowledge relating to games activities, health, fitness and well-being and safe practice, but showed lowest levels of confidence in swimming activities, summative assessment and teaching through a multi-ability model.

Specialists and Non-Specialists

The sample of respondents identified at the start of the survey if they were on a specialist (21%) or non-specialist (79%) pathway for primary PE. The data below is an overall picture of specialists and non-specialists irrespective of their programme route.

Mode Responses for Specialist Participants				
Hours of taught input	Number of lessons taught	Number of lessons observed	Overall confidence	Overall willingness
21+ hours (76.7%)	5+ (46.5%)	5+ (36.4%)	4/5 (44.2%)	5/5 (83.7%)
Most confident areas of professional knowledge				
1.Q.22 Fundamental movement skills Mode 5/5(n-71)	2.Q.25 Games activities Mode 5/5 (n-65)	3.Q.35 Lesson planning Mode 5/5 (n-61)	4.Q.38 Safe practice Mode 5/5 (n-59)	5.Q.36 Managing behaviour Mode 5/5 (n-55)
Least confident areas of professional knowledge				
1.Q.41 Assessing pupils summatively Mode 3/5 (n-50)	2.Q.43 Fundamental British values Mode 3/5 (n-41)	3.Q.37 Gifted and talented provision Mode 4/5(n-42)	4.Q.28 Outdoor and adventurous activities Mode 4/5 (n-41)	5.Q.39 Inclusive principles Mode 4/5 (n-43)

Table 18: Mode response for specialist participants

Participants, on a specialist route, reported a mode response 21+ hours of taught input for PE. The percentage of respondents reporting this mode (76.7%) was higher than any other group of PSTs in this study. Opportunities to teach and observe PE presented modes of 5+ lessons. Overall, there were high levels of confidence in PE (4/5) and willingness (5/5). Specialists PSTs' were most confident in areas of professional knowledge relating to FMS, games activities and lesson planning, but showed lowest levels of confidence in assessment, Fundamental British Values and providing for gifted and talented pupils.

Non-specialists

Mode Responses from Non-Specialist Participants				
Hours of taught input	Number of lessons taught	Number of lessons observed	Overall confidence	Overall willingness
6-10 hours (35.7%)	0 lessons (36.1%)	5+ (27.4%)	3/5 (38.7%)	5/5 (37.1%)
Most confident areas of professional knowledge				
1.Q.22 Fundamental movement skills Mode 4/5 (n-182)	2.Q.32 Health, fitness and well-being Mode 4/5 (n-178)	3.Q.38 Safe practice Mode 4/5 (n-175)	4.Q.25 Games activities Mode 4/5 (n-173)	5.Q.34 Whole school activities Mode 4/5 (n-153)
Least confident areas of professional knowledge				
1.Q.27 Swimming activities Mode 0/5 (n-125)	2.Q.18 Aims of PE Mode 3/5 (n-173)	3.Q.19 Multi-ability model Mode 3/5 (n-172)	4.Q.40 Formative assessment Mode 3/5 (n-165)	5.Q.23 Stages of skills progression Mode 3/5 (n-163)

Table 19: Mode response for non-specialist participants

Participants, on a NSP route, reported a mode response 6-10 hours of taught input for PE. Opportunities to teach PE was in contrast to their SP counterparts with a mode of 0 lessons; however a mode of 5+ lessons indicated that there were opportunities for observing practice. Overall, there were mid-levels of confidence to teach PE with a mode of 4/5 and a high level of willingness with a mode of 5/5. NSP PSTs' were most confident in areas of professional knowledge relating to FMS, health, fitness and well-being and safe practice, but showed lowest levels of confidence in swimming activities, articulating the aims of PE and teaching through a multi-ability model.

A further analysis was undertaken using an independent samples' T-Test, to look for differences in mean confidence and willingness to teach for those taking/not taking a PE specialism pathway.

5. Are you on a physical education specialism pathway?		N	Mean	Std. Deviation	Std. Error Mean
45. How would you rank your overall confidence to teach physical education (at the relative stage of your training)?	No	496	2.93	1.128	.051
	Yes	129	4.26	.753	.066
46. How would you rank your willingness to teach physical education?	No	496	3.87	1.185	.053
	Yes	129	4.81	.485	.043

Table 20: Independent t-test of confidence and willingness to teach

Significant differences were flagged in green. PE specialist pathways showed significantly higher confidence and willingness to teach scores than those that had not been on a specialist pathway.

Positives Experiences during School-Based Placements

In order to form an overview of what constitutes a successful school-based experience, participants were invited to leave a comment on what they had found to be positive. A total of 16 themes were identified from 538 responses, indicating a variety and range of experience. A total of 123 participants were unable to leave any positive comment, which was the most cited response for this question. The following themes emerged, ordered from most-least cited.

Theme	Number of citations
Not applicable	123
Institutional-related	
Opportunity to teach	85
PE workforce	58
Modelling of practice	57
Subject value/culture	44
Professional collaboration and development	36
Curriculum	30
Catering for children's needs	26
Resourcing	24
Beyond the curriculum	14
Child-related	
Pupil enjoyment and engagement	100
Children's physical activity	10
Children's progress	9
PST-related	
PST enjoyment	17
New ideas	17
Changing perspectives	9

Table 21: Themed responses of positive experiences of school-based placements

Fifteen out of the sixteen themes were organised under institution, PST-related and child-related factors. The most frequently occurring theme was where the PST had described a high volume of pupil enjoyment and engagement in PE. However reasons for this were rarely developed beyond the language of 'fun', 'engaged', 'enthusiastic' and 'enjoyable'. The institution (the school) generated the most amounts of themes that led to positive experiences; the most prominent being the opportunity to teach a lesson. Feedback highlighted that opportunity to teach, whether it was on a recent or previous placement, was varied with some trainees commenting only having the opportunity to teach 1 lesson. Many positives associated with teaching also included professional support in planning short and medium term lessons, receiving constructive feedback and gaining practical experience of teaching in different environments. Opportunity to participate in extra-curricular clubs i.e. skills2play from themselves allowed the PST to further link what they had learnt in theory and apply into practice.

"It was a diverse lesson which all children could take part in, all of the children enjoyed pe and really loved getting involved."

Participants articulated that there was a diverse workforce teaching PE in primary schools, which gave them range of practice to observe. This included delivery from sports coaches, teaching assistants and secondary PE teachers. The positives that trainees commented on included: enthusiasm of teachers, structure of lessons, taught skills, very detailed and good

range of activities, active and engaged learners, links to sports competitions and colleagues knew the children and were confident in teaching PE.

"I enjoyed seeing swimming being taught and the specialists coming in to teach rugby and football. I learned a lot from these sessions such as how to get children to work as a whole class during football and rugby."

"It was a rewarding experience and the class teacher was very supportive and helped me to improve my teaching."

"The freedom when planning and teaching. The shared teaching between teacher and sports coach. The amount of P.E the children received".

Specific references were made in regard to the positives of sports coaches. They were described as 'enthusiastic', 'good subject knowledge' and 'inclusive'. This was only viewed as a positive, however, when the trainees were able to access the lessons. A number of comments viewed the wider workforce as a 'PE specialist' who provided greater insight and in-depth teaching (as class teachers were not as confident), structure and strong pedagogical knowledge. Of particular benefit was when the class teacher and coach combination to deliver learning to the children (however this was rarely observed).

Modelling of practice was the fourth most cited positive theme overall. It was closely linked to another theme relating to professional collaboration and development. Specific benefits to a PST's practice was when modelling took place over a sustained period of time (e.g. a unit of work) and demonstrated behaviour for learning approaches, a range of teaching styles and organisation.

"It was good to see a whole unit taught and how it develops from skills into mini games, as well as the length of time given to the teaching points and instructions"

"My experience was positive as it supported me to know what the role of a teacher in PE is and to have knowledge of the different factors that promote a positive PE environment."

It was really good to see P.E teaching in action and to consider how I could get the most out of students in a subject that has little weighting in comparison to others by the school. It is a subject I feel is very important so it was important to me and my training to have this experience and opportunity to consider how to utilise my time

PSTs further commented on the benefits of professional feedback and collaboration as a way to develop their practice. Due to a diverse teaching workforce, modelling was experienced by a range of facilitators including teachers and sports coaches. PSTs' also found it useful to observe other student colleagues who were on a specialism route.

"Seeing a variety of lessons, including those from sports coaches, those taught by London Irish and those from class teachers"

The culture and value of PE was the next most cited theme towards a positive school-based placement. PSTs' commented that the subject was valued most when it was considered within a whole school, it started from the Early Years, was led by the head teacher, was regularly timetabled and delivered (not sacrificed due to bad weather, SATs and other priorities), was led by a strong subject leader with excellent subject knowledge and offered further opportunities for PSTs' to be part of CPD whilst they are on placement. PSTs' further recognised how additional initiatives like the golden mile, 'This Girl Can' campaign compliment PE and the value of it within the school culture.

"Really fantastic, as children in Reception understood why PE was important, most enjoyed it, especially the ball skills and they had a sense of achievement after mastering a new skill. PE within the school was seen as really positive with all teachers participating"

"Children were always engaged and keen to participate in the lessons. It was clear that the school really valued the two timetabled slots for PE per class and ensured they were always given."

Overall, the least frequently cited positive theme was around changing perspectives and children's progress. A small number of comments made reference to appreciating the placement experience and seeing children make progress.

"I hadn't realised that PE could extend beyond games"

"Know what not to do. Not as scary as first anticipated."

The institution had the biggest number of comments that led to a positive experience overall. These were primarily characterised by having an opportunity to teach and via the children, seeing them have fun and engage in their learning.

"The children really seemed to be engaged in the Physical Education that was provided to them which was really positive. It also helped them to work with others and develop relationships as they had to trust each other when balancing in paired positions that required one child to hold the other."

"all the children remained engaged throughout the lesson and were willing to give each activity a try."

Barriers Experienced During School-Based Placements

Participants were asked to comment on the barriers that had been encountered during their last school-based experience. In total 13 themes were identified from 462 responses, indicating a variety and range of experience. The following themes emerged and were ordered from most to least cited.

Theme	Number of citations	Relationships with other themes
Institution-related		
No opportunity	96	Outsourcing Subject culture/value Time
Outsourcing	64	No opportunity PPA time Subject culture/value
Mentoring	52	Outsourcing Subject culture/value Resourcing
Subject value/culture	51	Time Outsourcing
Resourcing	43	Subject culture/value Outsourcing
PPA time	33	Outsourcing No opportunity Time
Time	21	PPA time Subject value culture
Quality of provision	9	Mentoring
PST-related		
Trainee confidence	36	No opportunity Mentoring Resourcing
Catering for children's needs	33	Trainee confidence Resourcing Mentoring
Class management	20	Mentoring
Trainee knowledge	14	No opportunity Resourcing

Table 22: Themed responses of barriers encountered during school-based placements

The data in the table shows a discrete list of the themes that have been further sub-divided under the institution and the PST. Responses to this question also showed that many relationships existed amongst the themes, presenting a more interconnected picture of the barriers.

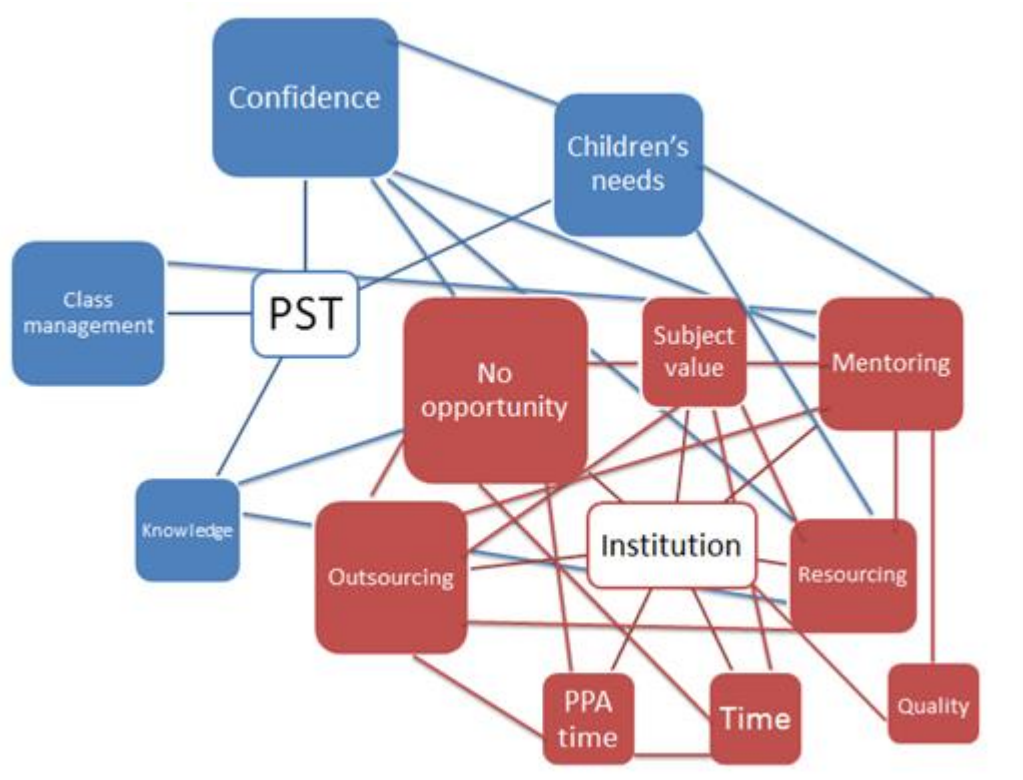


Figure 15: The inter-relationships of perceived barriers in ITE school-based learning

The most frequently occurring theme was ‘no opportunity’ (96) and was characterised through opportunities to teach, observe and plan lessons. Being able to apply theory and learning into practice was a further distinction of this theme. Some comments raised concern about the legalities of teaching PE when on placement, with other comments indicating that opportunities were favoured to specialist over generalist PSTs.

“Not being able to teach it myself. Due to having to be supervised whilst teaching it”

“I was unable to teach it and this continues to affect my confidence with teaching PE”

“Not being able to experience it means that I think I will find it daunting”

“Not being able to observe whilst on placement and now I have to plan and teach not knowing the practical side of teaching pe - beyond that of the lectures at uni which were 1.5 yrs ago!”

“I did not see any objectives the lessons were planned from. Neither did I have the opportunity to plan and teach PE.”

Although 'no opportunity' was the most cited theme, outsourcing was the second and appeared the most often in other responses. The comments left by participants stated that there was a reluctance by schools to let a PST teach a lesson when an outsourced colleague had been paid for. Outsourcing appeared frequently in the theme of PPA time, as sports coaches were explicitly mentioned as a means to cover a teachers release from the timetable. This allowed the PST to be released at the same time to ensure collaborative planning, preparation and assessment of other curriculum subjects. When the opportunity had arisen for the PST to work with a sports coach (or equiv.), this was often in an observational or supportive capacity. The nature of hourly paid employment to an outside provider meant less opportunity for the PST to discuss subject-related matters before, after or between lessons. A number of comments from participants referred to outsourced lessons being observations of sports coaching rather than PE teaching.

"I was unable to teach a P.E. lesson as this person was being brought in especially to teach the class."

"Not able to teach PE as there was an external coach who taught PE, during their only PE lesson (once a week) which was also my PPA time."

"The lessons were taught by a sports coach so couldn't really get involved"

"Coaches in once or twice a week to teach so unable to teach as much as I wanted."

"Lack of opportunity due to the hiring of external sports coaches."

The subject's culture and value in school was the third most cited barrier for a PST's progression and development on school experience. It became a common theme across comments connected to the institution. Participants often referred to PE as 'not being taken seriously' and 'not talked about'. The main factor attributed to this was the perception given that other subjects such as Maths and English have a higher curriculum priority, or time was needed to prepare for other more valued activities such as assembly, SATS and 'catch-up' work. Participants commented that a low subject priority was also evident in school by a lack of resourcing and organisation of the subject, lessons being shortened, no professional development for staff and inconsistencies in teaching, planning and assessment.

"The concentration was on the core subjects and classroom environment. Due to a coach being used to take the PE throughout the school, there was little opportunity to be involved due to the school requiring me to plan in this period. Other activities in school meant that the second timetabled PE lesson (under the control of the class teacher) was regularly changed for other subjects, lessons and activities in school. Despite the school had excellent facilities and equipment, unfortunately I was unable to develop my own knowledge or experience."

Mentoring was cited 52 times and was singled characterised by the support/guidance offered and the attitude, confidence and perceived value of the subject by the teacher/mentor. Other associated themes such as resourcing and outsourcing of the subject were also believed to affect the quality and provision of support received. In particular the lack of guidance and access to planning was of prominent concern as this disconnected the overall expectations for the placement i.e. to plan and deliver lessons and set and review professional targets. Where the mentor's confidence and competence was low, the sample commented that this had led to receiving poor quality feedback and guidance.

"I knew the most about P.E and teaching it in the school and was the most keen to do so yet I had a teacher who didn't like P.E and had poor subject knowledge of P.E grading me and giving me feedback, which I found ironic."

"Not very high quality. Little skills learnt. Rushed. Teachers generally not being very organised. Not targets being used"

"There was not a knowledgeable other or subject leader at the school so I was using past coaching experience to teach."

Resourcing of the subject permeated in 43 comments and was the fifth most dominant barrier. This theme was characterised by planning, activity resources, facilities, space and equipment. Participants highlighted that lack of resourcing had prevented them from developing new ideas, planning and delivering effective lessons.

"There was a limited supply of equipment available when teaching which meant that plans needed to be altered"

"The school followed a pre-set PE plan that they had bought, and often did not stray from it. I had written my own PE plans that met the same LO as the pre-planned."

"The schools lack of resources and facilities"

Catering for children's diverse needs was recognised by the sample (33) as a barrier in progressing their understanding of the subject and their subsequent ability to deliver good lessons. Children's needs were characterised from general to specific. A number of comments referred to 'wide ranging ability' as well as highlighting specific children who have Special Educational Needs and Disabilities and the nature of these needs as Cerebral Palsy, Global Delay Disorder, low confidence, poor levels of fitness, dyspraxia and hearing impairments. Other comments stated that more guidance on how to differentiate was needed with explicit examples given to progressing skills and providing challenge.

The results show that the institution had the most number of barriers and the highest frequency of these barriers from the participants' responses. The central issue that prevented a PST from developing on a school-based placement and underpinned 'no opportunity to teach' was the outsourcing of the curriculum and the subject's value/culture.

DISCUSSION

The question of whether primary educators are competent and confident to teach PE has been a concern of policy makers, academics and teacher educators for years (Andrews 1987, Ofsted 1999, Revell 2000, Warburton 2000, DeCorby, Halas et al. 2005, Caldecott, Warburton et al. 2006, Griggs 2007, Blair and Capel 2011, Harris, Cale et al. 2011, Ofsted 2013, DfE and EfA 2014, DfE 2015b) and has raised the question about who is ultimately best placed to teach the subject (Griggs 2008, Morgan and Bourke 2008, Petrie 2011, Brooks and DinanThompson 2013, NCTL 2015).

This research sought to find out how prepared PSTs are to teach primary PE and the factors that influence their development. The two questions that drove this research were:

1. How prepared are pre-service teachers to teach primary PE?
2. What factors affect the development of primary physical educators during initial teacher education?

The opportunity and extent for participants' to engage in primary PE was variable across and within programmes. So too were the factors that supported or impeded their development. Some of our findings correspond with previous research and thinking, but new findings have emerged that we believe has implications for the nature and content of primary PE ITE in the future.

Teacher Preparedness

Previous research has argued that primary PE is plagued by insufficient time within ITE and low confidence and competence amongst PSTs (Carney and Armstrong 1996, Faulkner, Reeves et al. 2004, Caldecott, Warburton et al. 2006, Garrett and Wrench 2007, Harris, Cale et al. 2012, Elliot, Atencio et al. 2013). However, a welcome finding in this research has been the high levels of willingness and secure levels of confidence across the sample. High confidence and willingness were trends in recent studies undertaken by Adams (2015) and Randall (2016) who observed that far from demonstrating negative attitudes, PSTs were confident and willing to teach PE, but it was other factors that prevented them from doing so. In Haydn-Davies, Kaitell et al. (2010) study of trainee teachers' confidence in primary PE, a pattern of improved confidence appeared after the university taught input, but then decreased after a period of time in school. The data from this study also highlighted a lack of confidence emerging from the school-based setting, with a statistical analysis showing that the number of lessons of PE taught during a school-based placement had a strong bearing on a PSTs overall confidence level. With the mode response being 0 lessons taught, having no opportunity to teach PE was the single most critical barrier in the PST's development. School centred initial teacher training programmes, other than Teach First, demonstrated the highest levels of confidence across programme routes, indicating that those embedded in the school are more likely to teach PE and become confident, than those who are placed in school for a one-off period. Without intending to mislead and place a higher value onto a particular programme route, the outcome of this data should be viewed with caution as

even on school centred programmes, the mode confidence of 4/5 was only provided by 26.9% of participants.

Participants in this study also indicated a variety of experiences than previously reported in the literature. Despite a growing range of ITE programmes now available, it was at a trainee level where most inconsistencies were evident. The participants' responses confirmed that 6 – 10 hours of taught input was 'typical' across many ITE programmes, however this was notably lower for the school-based routes (SCITT, School Direct and Teach First) where the mode was 1 – 5 hours. The greatest difference around teacher preparedness was felt more between specialist and generalist pathways than individual programme routes (i.e. school-based versus university based). Our findings suggest that there is a clear divide between specialist and generalist PSTs, with specialists reporting access to over 21 hours of taught input and a greater number of opportunities to teach/observe in school compared to their non-specialist counterparts. Whilst it could be argued this difference has always existed, the data from this study suggests that schools now have fewer opportunities than before for a PST to engage in primary PE (Haydn-Davies, Kaitell et al. 2010) and when an opportunity does arise, it is likely to be given to a specialist instead of a generalist.

The Wider Workforce

Findings from Phase One and Phase Two present a complex picture of who delivers primary PE. This was viewed by the participants as both an opportunity and a barrier to their learning. A pattern emerged across all programme routes that there was a high frequency of outsourcing of PE in their schools to external providers. Large scale outsourcing across England has been made possible by the introduction of planning, preparation and assessment (PPA) time for primary teachers implemented through the Workforce Reform Act (DfES 2003a) and the introduction of the Primary PE and School Sport funding (Blair and Capel 2008, Griggs 2010, Griggs 2016). The impact of funding into PE has led to an increase in non-qualified personnel delivering primary PE curriculum, resulting in diminished opportunities for PSTs to observe, plan and teach. Participants in this research used language such as a 'handing over' of the PE and a subject that is 'left up to' specialists, to describe the outsourcing agenda. Many PSTs felt they could not practice their teaching for legal reasons and they should leave it up to the experts. The wide spread and embedded nature of external providers now responsible for teaching primary PE, has meant that mentors viewed this as the norm and that learning to teach PE is not a necessary component of a PST's practice.

The diverse workforce also presented a number of benefits. When PSTs were able to access lessons, they reported viewing a range of different approaches, styles and ideas. This was largely characterised as 'pedagogy' when delivered by the teacher and 'coaching' when delivered by an outsourced provider. Although the recent survey examining the impact of the Primary PE and Sport Premium suggests that the money was being used to fund teachers to work alongside coaches (Callanan, Fry et al. 2015) the data from our larger scale sample indicates this is not the case, with only 2.3% of lessons being taught in this way. PSTs

felt that having access to a lesson, where the sports coach worked alongside an experienced teacher, would have been beneficial to their development.

Opportunity and Access

The most significant finding in this study was the limited opportunity that PSTs had to access the PE curriculum. This was more evident amongst generalist PSTs, but not exclusively. Opportunity was characterised through none and limited teaching opportunities, a lack of quality mentoring, limited feedback and challenges in accessing resources and planning. The converse was also true; when opportunities to teach PE were available, this had a direct positive impact on the PSTs' confidence to teach. Whilst this seems an obvious finding, its application across and within programmes, was not consistent. The data offered further insights into institutional challenges for primary PE. A previous study by Morgan and Hansen (2008) identified institution and teacher-related factors as barriers to teach high quality primary PE. Such factors included the school culture, teacher attitudes, confidence, equipment, time and other priorities; all of which were factors identified in this study. One area that was in stark contrast between this study and Morgan and Hansen's (2008), was the amount of funding available to support primary PE in school. Randall (2016) has argued that in England the increased funding for primary PE has brought with it a host of different challenges that are now much more politically driven i.e. who teaches PE and the sustainability of an Olympic legacy.

The increased amount of funding into English primary schools and school budgets supporting PPA time, have been attributed to the increased number of external providers delivering curriculum PE (Blair and Capel 2008, Griggs 2010, Griggs 2016). This study has uncovered, for the first time on this scale, the impact this has had on ITE. Although the Primary PE and Sport Premium were never intended to replace or displace teachers (Davies 2013), although this appears to have been the case in a number of schools within this research. No opportunity to teach PE was also associated with a number of other barriers including: the quality of mentoring, the school culture of PE, the subject's value and facilitation of PPA time. Although external providers were not personally preventing PSTs from engaging in PE, the policies and school culture that facilitated their wide spread use did – seeing the use of coaches, rather than the development of new teachers, as a solution to policy problems (Randall 2016).

An independent report, investigating the Primary PE and Sport Premium, noted that children were now accessing 118 minutes of curriculum time, a reported improvement on the 108 minutes from before the premium (Callanan, Fry et al. 2015). The participants in this study however, noted that only 62% of children were receiving this target. For the 38% of the sample, whose pupils received one lesson or less, this became a notable factor in them being able to access the curriculum as part of their ITE. In 2008, the figure for pupils receiving 120 minutes of curriculum PE was at 90% (Quick, Dalziel et al. 2008), which indicates an overall downturn in curriculum time being offered over the last few years.

Professional Knowledge

Central to any preparation for becoming a teacher, is the development of knowledge (BERA 2014). What makes learning to teach in primary education challenging is arguably the many subject disciplines and pedagogies involved (Haydn-Davies, Kaitell et al. 2010). The content and purpose of PE has been subject to much debate (Siedentop 2002, Tsangaridou 2002, Tsangaridou 2006, Amade-Escot and O'Sullivan 2007, Green 2008, Rainer, Cropley et al. 2012) and been criticised for confused and contradictory ideologies (Green 2010). This has meant decisions about the provision for ITE, often within limited hours, has become difficult. In previous studies, the PST has indicated valuing the school-based elements of the programme over the university (Van Berlo 2007, Velija, Capel et al. 2008), however data from this research suggests that whilst that might still be the case, it is apparent that responses in the survey (positive and negative) were due to the lack of knowledge gained during the school based elements of the course. The most frequently occurring positive gained from being in a school, was the perceived enjoyment and engagement of PE from the children. Whilst this is a welcomed outcome of a PST's experience, it does indicate a lack of understanding of the subject beyond that of 'fun'. Furthermore, highlighting PE as 'enjoyable' can focus the PST on an outcome orientated experience of the subject; arguably presenting a limited understanding of content and pedagogical knowledge in order to make sense of how such engagement is achieved. In a study undertaken by Laws and Fisher (1999), it was also found the most commonly occurring expression to capture children's interpretation of PE was 'fun' and 'enjoyment'. Laws and Fisher (1999) believed these expressions encapsulated all that was positive or good about PE, showing fun as an important frame of reference for pupils. However, they also felt this interpretation of the subject created boundaries between the concept of real work and a chance to relax. Like the sample of PSTs in this study, Laws and Fisher (1999) also found it hard to get beneath these words to find out what was meant by fun and why this had educational value. Whilst we would not wish to de-value the importance of enjoyment in PE, we believe it would be dangerous for a PST to recognise this outcome as the main value of the subject.

After analysing participants' responses against the Professional Knowledge Model for Primary Physical Education (Randall 2015), the most confident areas of knowledge were in relation to health, fitness and well-being, safe practice, fundamental movement skills and games activities. Opportunity to learn about fundamental movement skills and games were particularly evident in school-based settings as these were the two most dominant aspects of curriculum content that were observed or taught. PSTs' articulated content of the curriculum through the activity areas and not through learning outcomes or non-physical aspects of learning. When described, what they were asked to teach and what they observed, responses were presented primarily as sporting activities. This was further reinforced by participants' responses, where low confidence existed in the understanding of a multi-ability model to teach PE (i.e. the development of other learning domains through PE such as social, thinking and creativity) and by school-based routes, where there was also low confidence in knowledge of the statutory frameworks (e.g. the national curriculum).

The area of knowledge that was consistently considered to be the lowest was in relation to swimming activities, despite currently being the only area of the primary PE national curriculum where children must meet a statutory target (DfE 2013b). Prior experiences and the socialisation of teachers may account for this pattern of low confidence (Green 2008, Morgan and Hansen 2008, Pearson 2011, Pickup 2012a) as teachers' own experience of taking part in sport and other physical activities such as swimming, are considered to be influential in shaping professional understanding. As a statutory activity of the national curriculum, swimming is arguably an area teachers *must* have knowledge about. Arguably this omission from a teacher's content knowledge might impact upon their overall understanding of a child's progression through the subject. With 1,300 (6%) of primary schools still not offering swimming to their pupils (ASA 2015), the use of classroom teachers trained to deliver swimming, either independently or alongside class teachers may provide a solution to what is regarded as a safety and life skill deficit. The ASA (2013) further state that where schools achieved high attainment rates amongst their pupils in swimming was attributed to better pupil-to-teacher ratios, longer lesson times and a higher number of lessons offered. If swimming remains an outsourced activity area of the curriculum, taught and assessed by swimming teachers alone, then low confidence in this area of the PE curriculum will have little implication for ITE as teachers would not be required to teach it. This would arguably give rise to a much bigger debate about swimming's place in the broader PE curriculum, if it is considered to more 'specialist' than its other activity areas counterparts of dance, games, gymnastics, athletics and outdoor adventurous activities (Wallis and Binney 2011).

Assessment featured in many participant responses indicating a lack of understanding on how to make a judgement of children's progress in PE. For those students on a final year route, further support was also needed on inclusive practice and how to differentiate learning to meet children's diverse needs. A lack of mentoring, feedback and opportunity to teach led to a high number of comments from the sample who felt this was a major barrier in their future ability to teach.

RECOMMENDATIONS

Due to the complexity of primary PE ITE, recommendations from this research report has been aimed at three distinct groups: national policy makers, ITE providers and the individual PST. The findings from this report have clearly highlighted that in order for good practice to be developed and systemic weaknesses addressed, changes to primary PE ITE needs to be made at all these levels. Whilst the research team believe policy and government decisions concerning ITE are hugely important and play a significant role in the preparation of primary physical educators, they are not the sole influence. Furthermore, due to complex nature of school and university partnerships in ITE, policy that affects PE and school sport cannot be viewed in isolation of each other.

National Policy

1a. A comprehensive review of all current policy that directly influence PE, primary PE ITE and its effectiveness towards stated outcomes

Policy surrounding the Primary PE and Sport Premium and the development of primary PE specialist teachers should be considered jointly. We would recommend that as part of this review, clarity is given surrounding the role of the wider workforce in primary PE and the nature of what/who a primary PE subject specialist is. Targets need to be set and opportunities increased for suitably qualified PE specialists to operate most effectively in and across schools, including targeted mentoring to enable generalist teachers to deliver the subject competently and independently. We recommend that the responsibility for teaching PE remains with a qualified teacher, who is able to teach each child as part of a broad and balanced primary curriculum.

1b. The development of a central Hub that coordinates and supports teacher professional development in primary PE as a career long process

There is sizeable opportunity for primary PE to develop a sustainable and robust infrastructure for teacher education. This has been made possible through the Primary PE and Sport Premium. A Hub, that is recognised as a centre of excellence for primary PE and school sport, could coordinate regional professional development and assist the primary PE sector from its roots in ITE to the leadership and management of the subject (see national Maths Hubs as an example infrastructure <http://www.mathshubs.org.uk>). A hub, for example, may be a centre of excellence for ITE or an outstanding school with recognised expertise in physical education and school sport. National infrastructures including national governing bodies, PE and sport charitable organisations and the subject association for PE could work with Hubs to support a coordinated approach to professional development. The findings from this research have highlighted that there are a number of gaps in the preparation of PSTs and a challenge for providers to meet a breadth and competence of knowledge within limited hours of contact. Furthermore, mentoring, resourcing and professional development in school was recognised as a barrier to PSTs' development. A coordinated approach, that is career long, will allow excellent practice to be effectively shared and disseminated. This research has also exposed that the wide spread use of

external companies in primary schools has saturated the workforce and has been a significant barrier to PSTs' and in-service teachers' knowledge development and confidence. A coordinated Hub would ensure that high quality subject experts are accessed to address specific needs as requested by teachers and schools.

Initial Teacher Education Providers

2a. A minimum expectation of entitlement

The formal ITE programme is the first formal introduction of a teacher into the professional world of teaching primary PE. This report and others (Haydn-Davies, Kaitell et al. 2010, Coulter and Woods 2012, Adams 2015, Randall 2016) have highlighted that the opportunities available to a PST during their ITE programme can be varied, even within the same programme or provider. In particular, no opportunity to teach PE, poor quality of mentoring and a lack of feedback were some of the biggest barriers to a PST's development. Whilst the research team would advise against a completely standardised programme, that removes individual exploration and creativity, a strong recommendation is being made to ensure that a minimum entitlement is set for the teaching, observing and taught input of primary PE. This input should be considered to ensure sufficient time for the PST to meet the required standards and competency. Findings within this research have shown that the more opportunity a PST got to engage in teaching and learning about the subject, the more confidence they had to teach.

2b. The introduction of a core content curriculum for ITE

As alluded to in the Carter Review (DfE 2015a), we would like to further support the notion of a core content curriculum for ITE and extend this to subject level for primary PE. This research has highlighted a number of key areas of professional knowledge where PST's feel least confident. This report wishes to recommend that the following areas should be considered as a formal core content curriculum for primary PE ITE. We believe this will ensure consistency of provision across programmes and regions at a time where ITE is becoming increasingly diversified.

The core content curriculum should include a minimum knowledge entitlement of:

- the aims and purpose of primary PE and statutory subject guidance
- child development and expected progress
- fundamental movement skills and skill theme progressions
- activity areas to facilitate learning
- safe practice
- planning and assessment for effective learning
- inclusion and differentiation
- observation of teaching and learning in primary PE contexts
- professional target setting, responding to feedback and evidencing progress

2c. Directed supervision

With a diverse workforce now delivering PE in primary schools, the availability of a knowledgeable and qualified teacher has currently been limited to provide subject specific guidance. This recommendation asks for all PSTs to be under the guidance of a nominated teacher in school, who is responsible to action the ITE programmes minimum expectations (see above) and to ensure induction into the school's PE policies, resources, planning and expectations have been made. Although we recognise the teaching of the curriculum is at the discretion of the Head Teacher and may continue towards using outsourced providers, this should not be at the detriment of the PST. During an assessed school placement, questions regarding safe practice, qualifying to teach standards/competencies and duty of care should always be led by a qualified member of staff.

Pre-service Teachers

3a. Continuous auditing and review of professional development needs

The variety of confidence and experience that existed amongst individual PST's in this research highlighted the importance of personalised and individual professional training and development. Therefore a level of responsibility and accountability of personal development remains with the individual teacher. However, the challenge of teaching across the breadth of primary education is great, requiring engagement and competence in many subject curriculum areas. The generalist and specialist PST may struggle at the first hurdle by not know what it is they need to know. Despite these challenges, we believe all primary teachers should have the opportunity to teach PE, due to much strength they bring to the subject. A model and audit of professional knowledge (Randall, 2015) could be used to assist teachers in areas of strength and areas of development, encouraging a pro-active approach to identify specific needs and seeking opportunities to access training/support.

CONCLUSION

At the relative stage of training, the PSTs' who took part in this research were confident and willing to teach primary PE. Many positives were highlighted which supported the PST in developing a confidence across their professional knowledge base. The most prominent of these factors were children's enjoyment of the subject, an opportunity to teach PE when in school and learning from a diverse and skilled workforce. However, a number of dominant barriers persisted, many of which came from within the institution (the school). Having no opportunity to teach PE, the wide spread use of curriculum outsourcing and poor quality mentoring were the most frequently cited barriers. Concerns were strongly linked to the value of the subject in the school and the allocation of a teacher's PPA time. Furthermore, despite an increase of funding into the subject over recent years, access to high quality resources were still considered to be a barrier in developing professional knowledge and confidence.

The findings from this research have indicated a number of implications that are important for consideration at a political, institutional and individual level. Of most and immediate concern is the fragmentation of the workforce, the lack of coherence in policy and a growing polarisation between specialist and generalist teachers. Although this study did not directly ask any questions about effectiveness of the workforce and the spending of the Primary PE and Sport funding, insights from PSTs have indicated the money in many schools is being used to outsource the curriculum with many schools still not valuing the subject. The research comes at a time when current policy favours the training of primary PE specialists', the Primary PE and Sport Premium is set to be increased and the employment market favours the recruitment of outsourced providers to deliver the PE curriculum despite the fact that many do not have the necessary skillset, pedagogical understanding or understanding of the wider educational outcomes being sought. The crucial issue identified in this research has been that while policy aims to support current in-service-teachers and increase a small number of Primary PE specialists, this has been to the detriment of the generalist primary educator; who at the ITE phase is willing to teach PE but has limited opportunities to do so. A joined up approach to policy concerning primary PE and ITE may support the subject further in meeting its desired shared outcomes.

Given these findings, recommendations have been made to review current policy relating to PE and ITE, create a core content curriculum for primary PE ITE, a minimum entitlement for a PST's engagement in the subject and an increase focus on teacher-led self-auditing. We believe these recommendations will support the future education of our next generation of primary physical educators, as well as ensure the effective and sustainable infrastructure for life-long professional learning.

Future Research

Participating institutions involved in the Generation Next research project will meet to discuss the implications of this paper and future research (December 2016). Likely research includes the tracking of participants who took part in study through their early careers and determining the nature and knowledge of specialist teachers in primary PE.

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